INTERNATIONAL STANDARD

IEC 60393-6-1

First edition
2003-05

Potentiometers for use in electronic equipment –

Part 6-1: Blank detail specification: Surface mount preset potentiometers – Assessment level E

Reference number
IEC 60393-6-1:2003(E)

Publication numbering

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International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE N

For price, see current catalogue

INTERNATIONAL ELECTROTECHNICAL COMMISSION

POTENTIOMETERS FOR USE IN ELECTRONIC EQUIPMENT –

Part 6-1: Blank detail specification: Surface mount preset potentiometers – Assessment level E

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.
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International Standard IEC 60393-6-1 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

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

FDIS	Report on voting
40/1289/FDIS	40/1325/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.

This Blank Detail Specification is to be used in conjunction with IEC 60393-1:1989 and IEC 60393-6:2003.

The committee has decided that the contents of this publication will remain unchanged until 2008. At this date, the publication will be

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- withdrawn;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

A bilingual version of this publication may be issued at a later date.

POTENTIOMETERS FOR USE IN ELECTRONIC EQUIPMENT

Part 6-1: Blank detail specification: Surface mount preset potentiometers – Assessment level E

INTRODUCTION

Blank Detail Specification

A Blank Detail Specification is a supplementary document to the Sectional Specification and contains requirements for style, layout and minimum content of Detail Specifications. Detail Specifications not complying with these requirements are not to be considered as being in accordance with IEC Specifications nor are they to be so described.

In the preparation of Detail Specifications, the content of 1.4 of IEC 60393-6 is to be taken into account.

The numbers between square brackets on the first page correspond to the following information which is to be inserted in the position indicated.

Identification of the Detail Specification

[1] The “International Electrotechnical Commission” or the National Standard Organization under whose authority the Detail Specification is drafted.

[2] The IEC or National Standards number of the Detail Specification, date of issue and any further information required by the national system.

[3] The number and issue number of the IEC or national Generic Specification.

[4] The IEC number of the Blank Detail Specification.

Identification of the potentiometer

[5] A short description of the type of potentiometer.

[6] Information on typical construction (if applicable) for example: non-wirewound, lead-screw actuated.

[7] Outline drawing with main dimensions which are of importance for interchangeability and/or reference to the national or international documents for outlines. Alternatively, this drawing may be given in an annex to the Detail Specification.

[8] Application or group of applications covered and/or assessment level.

[9] Reference data on the most important properties, to allow comparison between the various potentiometer types.

[1]	IEC 60393-6-1-XXX [2] QC 410501XXXXXX
ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH : [3]	IEC 60393-6-1 [4] QC 410501
	SURFACE MOUNT [5] PRESET POTENTIOMETERS
Outline drawing and dimensions: (··· angle projection) [7] (When necessary the dimensions may be given in annex to the Detail Specification)	Typical construction: [6]
Terminal connections:	Assessment level: E [8]
For [1] to [9], see the Introduction.	

Information on the availability of components qualified to this Detail Specification is given in the register of approvals.

[9]

Table 1 – Important properties

Style	Rated dissipation at 70 °C W	Limiting element voltage (DC or AC r.m.s.) V	Insulation voltage (DC or AC peak) V	
			Normal air pressure	Low air pressure

1 General data

1.1 Recommended method(s) of mounting (to be inserted)

(See 1.4.2 of IEC 60393-6).

1.2 Dimensions

(When necessary, the dimensions may be given in an annex to the Detail Specification).

All dimensions are in millimetres.

1.3 Ratings and characteristics

Resistance range[1]	... Ω to ... Ω
Tolerances on rated resistance	± ... %
Resistance law (if other than linear)	...
Temperature characteristic of resistance (20 °C to 70 °C)	$\Delta R/R \leq$ ... %
Temperature coefficient	$\alpha \leq$... 10^{-6}/K
Climatic category	-/-/-
Low air pressure	8 kPa
Limits of resistance change (after 500 h or 1 000 h electrical endurance test)	±(... % *R* + ... Ω)
Starting torque	... mN.m to ... mN.m
Total mechanical travel	... ± ... turns or ... °
Limiting moving contact current	... mA

1.3.1 Derating

Potentiometers covered by this Specification are derated according to the following curve:

(A suitable curve to be included
in the Detail Specification)

NOTE See also 2.2.3 of IEC 60393-6.

1.4 Normative references

Generic Specification: IEC 60393-1:1989, *Potentiometers for use in electronic equipment – Part 1: Generic specification*

Amendment 1 (1992)

Sectional Specification: IEC 60393-6:2003, *Potentiometers for use in electronic equipment – Part 6: Sectional specification: Surface mount preset potentiometers*

1.5 Marking

The marking of the component and package shall be in accordance with the requirements of 1.4.6 of IEC 60393-6.

The details of the marking of the component and package shall be given in full in the Detail Specification.

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[1] The preferred values are those of the E-series of IEC 60063 and/or the 1, 2, 5 series.

1.6 Ordering information

Orders for potentiometers covered by this Specification shall contain, in clear or in coded form, the following minimum information:

a) rated resistance and tolerance on rated resistance;

b) resistance law (if other than linear);

c) number and issue reference of the Detail Specification and style;

d) packaging instructions.

1.7 Certified records of released lots

Required/not required.

1.8 **Additional information** (not for inspection purposes)

(The Detail Specification may include information such as circuit diagrams, curves, drawings and notes needed for clarification of the Detail Specification).

1.9 Additional or increased severities or requirements to those specified in the Generic and/or Sectional Specification

NOTE Additions or increased requirements should be specified only when essential.

2 Inspection requirements

2.1 Procedures

2.1.1 For qualification approval, the procedures shall be in accordance with 3.2 of IEC 60393-6.

2.1.2 For quality conformance inspection, the test schedule (Table 2) includes sampling, periodicity, severities and requirements. The formation of inspection lots is covered by 3.3.1 of IEC 60393-6.

For the quality conformance inspection, the values representative of the whole approved range shall be tested within one year (Groups A, B and C only).

When drying is called for, Procedure I of 4.3 of IEC 60393-1 shall be used.

Table 2 – Test schedule for quality conformance inspection: lot-by-lot

Subclause number and test of IEC 60393-1 (see NOTE 1)	D or ND	Conditions of test (see NOTE 1)	IL (see NOTE 2)	AQL (see NOTE 2)	Performance requirements (see NOTE 1)
GROUP A INSPECTION (lot-by-lot)					
Subgroup A1	ND		II	4,0 %	
4.4.1 Visual examination					As in 4.4.1 of IEC 60393-1
					As specified in 1.5 of this Specification
Subgroup A2	ND		II	1,0 %	
4.6 Element resistance					As in 4.6.3 of IEC 60393-1
Subgroup A3	ND		S-2	4,0 %	
4.4.2 Dimensions (gauging)					As specified in the Detail Specification
Subgroup A4	ND		S-3	1,0 %	
4.7 Terminal resistance		Resistance between a and b			$R \leq \ldots\ \Omega$
		Resistance between b and c			$R \leq \ldots\ \Omega$
4.5 Continuity					As in 4.5.2 of IEC 60393-1
4.15 Rotational noise		Method B:			≤ ... % R or ... Ω (whichever is the greater)
4.12 Voltage proof (insulated potentiometers only)		Method:			As in 4.12.5
		Insulation resistance (normal air pressure)			≥ 100 MΩ
GROUP B INSPECTION (lot-by-lot)					
Subgroup B1	D		S-2	1,5 %	
4.18 Starting torque					As specified in the Detail Specification
4.31 Sealing (if applicable)		Temperature: 85 °C to 90 °C			As in 4.31.3 of IEC 60393-1