
**Aerospace — Solid-state remote
power controllers — General
performance requirements**

*Aéronautique et espace — Contacteurs-disjoncteurs statiques
commandés à distance — Exigences générales de performance*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 1, *Aerospace electrical requirements*.

This second edition cancels and replaces the first edition (ISO 27027:2008), which has been technically revised.

Introduction

This International Standard is the general performance requirements of the solid state (remote) power controller (SSPC) for aerospace.

Trend of aircrafts electric power system will be toward high voltage system. To accompany that trend, arc fault in the aircraft's wiring will become one of the major problems for the electric power distribution system. This second edition takes into account the arc fault detection.

The purpose of this International Standard, the definitions of SSPC and the contents of the document are as follows:

- a) The purpose of this International Standard
 - 1) To standardize the requirements for SSPC those are physically and environmentally diversified.
 - 2) To provide the applicable standard document for various SSPC.
- b) The definitions of SSPC
 - 1) Consists of a solid-state switching device and its driver circuit.
 - 2) Turns on/off the power output by receiving the control signal.
 - 3) Detects the over current in the load which results in limiting this current or shutting down for this current and/or optionally detects the arc fault in the circuit which results in shutting down the fault.
 - 4) Indicates the on/off status of the power output.
- c) The contents of this International Standard
 - 1) Definitions of the technical term.
 - 2) Electrical requirements.
 - 3) Test methods.

In order to satisfy the purpose of this International Standard, requirements such as physical, environmental, and individual items are specified in accordance with the detail requirements that are issued individually.

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Aerospace — Solid-state remote power controllers — General performance requirements

1 Scope

This International Standard specifies the definitions, titles of general performance requirements, and test methods to determine the performance of solid state (remote) power controller (SSPC) for use in aerospace electrical power systems.

The SSPC consists of solid state-switching device(s) and associated solid-state circuitry for protection, action of control signals, and providing status information.

2 Normative references

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

ISO 1540, *Aerospace — Characteristics of aircraft electrical systems*

ISO 7137, *Aircraft — Environmental conditions and test procedures for airborne equipment*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

arc fault

sustained luminous discharge of electricity across a gap in a circuit or between conductors

Note 1 to entry: Arc impedance can reduce low-voltage fault current magnitudes appreciably.

3.2

current limiting

function to limit the power output current to the required level within required time from overload or short circuit conditions which is shown in [Figure 2](#)

3.3

load voltage

voltage between the power output terminal of the SSPC and the power ground

3.4

load voltage rise and fall time (D.C. devices and non-zero crossing turn-off A.C. devices)

time interval between 10 % and 90 % of the steady state load voltage value which is shown in [Figure 1 a\)](#) for D.C. devices

3.5

off state

condition which, with the turn-off signal applied, the device prevents power from being passed to the load

3.6

on state

condition which, with the turn-on signal applied, the device allows power to be passed to the load