

OSM/EE DECISION SHEET

Category	Standard:	Clause	Document no.
TRON	EN 60065:2014	14.6.3.3	OSM-EE 18/6
Subject		Key words	Meeting
Fuses in parallel		Fuse	London 2018

Question

Clause 14.6.3.3 of IEC 60065 appears to not allow fuses to be in parallel with each other. (Although the text is not 100% clear because “a fuse” is stated rather than “fuses”):-

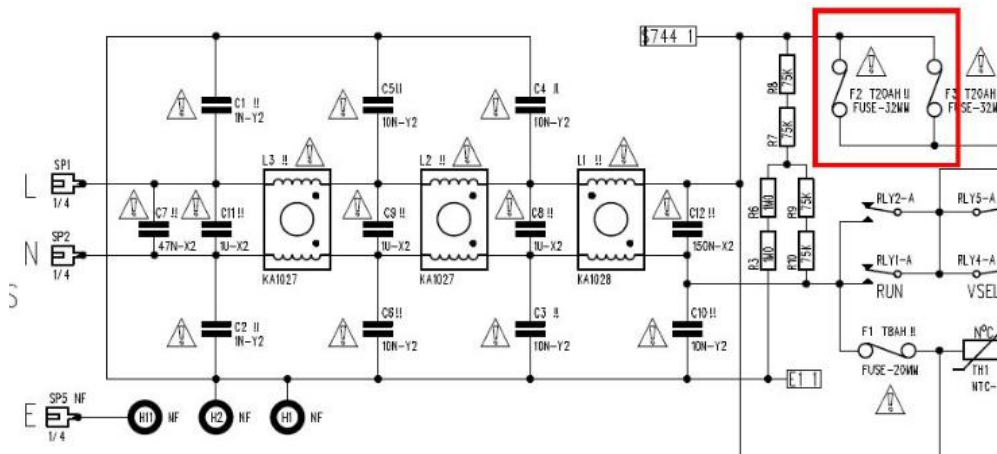
- 94 - IEC 60065:2014 © IEC 2014

The marking requirements apply also if the fuse has a rated current outside the range specified in IEC 60127.

Compliance is checked by inspection.

14.6.3.3 Fuse holders, so designed that a fuse can be connected in parallel in the same circuit, shall not be used.
Compliance is checked by inspection.

The schematic shows the primary circuit of a commercial high power amplifier:-



Referring to IEC 62368-1:-

5.6.4.3 Current limiting and overcurrent protective devices
The current limiting device (a PTC device) or the overcurrent protective device (a fuse or a circuit breaker) shall not be connected in parallel with any other component that could fail to a low-resistance state.

This is clearer in that it states that a fuse shall not be connected in parallel with a component that could fail to a low-resistance state. I guess that a fuse in parallel with another fuse is OK for IEC 62368-1 because the 2nd fuse would not generally fail to a lower resistance state than it was to start with.

Can we use this logic to accept the fuses in parallel in an amplifier tested to 60065?

Please see also the Decision 11/3 applicable to EN 60950-1 from Vienna meeting attached

Decision

OSM does not see a technical reason to reject fuses in parallel (not limited to 2).
It should be clarified that the breaking capacity of each of the fuses must be sufficient to cover the total available breaking current of the circuit.

Decision 11/03 refers

Explanatory notes

VIENNA – OSM/EE MEETING FOR ELECTRONIC EQUIPMENT 05 – 06 MAY 2010

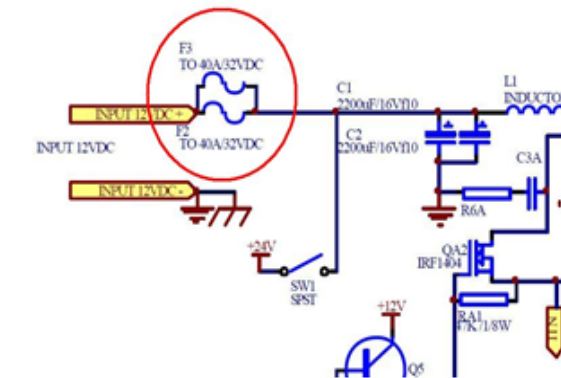
-ITEM FORM-

LCIE-France /N°1/2010

Standard: EN 60950-1:2006 + A11:2009 +A1	Sub clause: 2.7.4	Sheet No.: DECISION 11/3 Page 1 of 1
Subject: Fuses in parallel connection, in the input circuit.	Key words: Parallel, Fuses, Input Circuit	Meeting: Vienna, 2010 Agenda item 8.2, Brussels item 5.1.6

Question:

Are two fuses in parallel connection allowed in the input circuit?



Proposed Decision: No

Decision: OSM EE conclusion: decision only in the minutes

OSM does not see a technical reason to reject fuses in parallel (not limited to 2).

It should be clarified that the breaking capacity of each of the fuses must be sufficient to cover the total available breaking current of the circuit.

Explanatory notes:

Certain low voltage circuits may be rated at 100 A or more (e.g. 3V3/125A). Suitable fuses of such a rating are not available. To protect such circuits, some manufacturers have proposed the use of 2 fuses placed in parallel.

Even it's not mentioned clearly in the EN 60950-1, this is part of the basic electrical engineering knowledge and it's therefore not necessary to mention in the standard. In addition,

the standard EN 60065:2002, cl. 14.5.2.3 not allows to set the fuses in parallel

14.5.2.3 Fuse holders, so designed that fuse-links can be connected in parallel in the same circuit, shall not be used.

Compliance is checked by inspection

The question will be asked to IEC TC108 MT2. Secretary 2010 action.

IEC TC108 MT2 Seattle 2010-10:

MT2 agreed with the decision of the OSM, but felt that it should be clarified that the breaking capacity of each of the fuses must be sufficient to cover the total available breaking current of the circuit.