OSM/IN DECISION

Standard:	EN 60669-2-1:2002/A1	**Sub clause:**	101.1.1.2	**Sheet N°:**	OSM/IN 285
Subject:	Abnormal conditions	**Key words:**	- associated fuse, overload, abnormal conditions	**Meeting N°:** **Inquiry:**	26 (2016) OSM/IN(Inq)-138 _2016

Question:

Electronic switch without incorporated temperature-limiting device and without incorporated fuse as mentioned in EN 60669-2-1:2002/A1, sub-clause 101.1.1.2.
Manufacturer specified in the instructions for use the protective device (fuse complying with IEC 60127) to protect electronic switch.

How to properly define test current according to sub-clause 101.1.1.2 for constructions 1 and 2 as described below?

Do you consider requirement of sub-clause 101.1.1.2 in a way to apply factor 2,1 of declared associated fuse or you consider the value of fuse in the installation which is rated in worst case 16 A?

Example of construction 1:

Manufacturer specifies directly associated fuse F1.6A/250V to be inserted in the circuit to protect electronic switch. Fuse is inserted in the circuit according to the instructions for use in the installation box.

Dimmer (1M) + fuse in a separate housing (1M):

Example of construction 2:

Electronic switch consists of two independent electromechanical switches – relays. Electronic switch is inserted as an upgrade of mechanical switches to remotely controlled switches.
Manufacturer specifies in the instructions for use two directly associated fuses T4A/250V to be inserted in the circuit to protect electronic switch (e.g. pattern No.1 + pattern No. 1). Fuse is inserted in the circuit inside the installation box in a quick fit connector.

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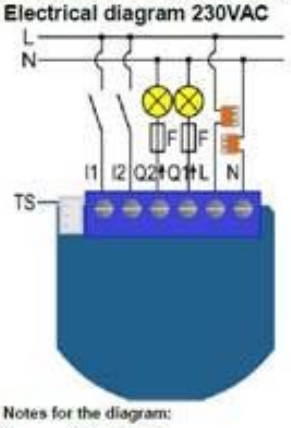
Electrical installation must be protected by directly associated over current protection fuse 4A, gG or Time lag T, rated breaking capacity 1500V (ESKA 522.723) must be used according to wiring diagram to achieve appropriate overload protection of the module.

Electrical diagram 230VAC



Notes for the diagram:

N	Neutral lead
L	Live lead
Q1↑	Output for electrical device no. 1
Q2↑	Output for electrical device no. 2
I2	Input for switch to control electrical device no.2
I1	Input for switch to control electrical device no.1

Proposal:

Consider requirement of sub-clause 101.1.1.2 in a way to apply factor 2,1 of declared associated fuse

Construction 1: Test current according to sub-clause 101.1.1.2 is 2,1 x 1,6A = 3,36 A

Construction 2: Test current according to sub-clause 101.1.1.2 is 2,1 x 4A = 8,4 A.

Explanatory Notes:

1) Proposal of calculation of test current is accepted for specified associated fuse.

2) Both constructions are acceptable under the following conditions:

- In both constructions 1 and 2 the required fuse(s) and fuse-holder(s) shall be considered as a part of the switch.
- The required fuse(s) shall be provided by the manufacturer and the usage shall be described in the manual.
- Clause 9

This clause is applicable including the required fuse(s). Especially for construction 2 a special wall-box may be required.

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- Clause 10

Protection against electric shock respectively clause 10.101 may be applicable.

- Clause 12

The requirements for external wiring shall be taken over to the fuse-holder.

Requirements of clause 12 Terminals, shall be applicable for the external terminals of the fuse holder.

- Clause 101.1.1.2

Temperature limits are applicable for the switch including the fuse-holders and the internal wiring between the fuse-holder and the switch.

- Clause 102.2

The fuse and fuse-holder shall be according to clause 102.2 and shall correspond to IEC 60127.