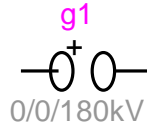


Flashover switch



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1 Available versions

This device is available in both 1-phase and 3-phase versions. The 3-phase version is the equivalent of 3 independent 1-phase devices.

1.1 When changing phases

It is allowed to switch from 1-phase to 3-phase or from 3-phase to 1-phase. The user must verify the scope requests according to requirements. The user must also verify entered data since phase data is not kept when looping between 1-phase and 3-phase device versions.

2 Parameters and rules

This device simulates a flashover switch based on a voltage condition.

The parameters from the data tab are:

- t_{close} is the time before which the switch is prevented from flashing over.
- t_{delay} is the time elapsed after flashover, before which switch opening will not be allowed. The switch is allowed to open when t_{delay} is exceeded and the switch current is below I_{margin} or when its current crosses 0 when $I_{margin} = 0$.
- I_{margin} is the absolute switch current margin for allowing to open the switch after t_{delay} .
- V_{flash} is the flashover voltage, the voltage that must be exceeded for the switch to close.

This device can be 1-phase or 3-phase. It is not allowed to delete any pins. It has zero resistance when closed and infinite resistance when open. It is allowed to connect several flashover switches in parallel if they do not conduct at the same time.

3 Netlist format

```
_Swg;g1;2;2;kk,mm,  
15ms,10us,1mA,10kV,?v,?i,?p,>v,>i,>p,>S,
```

Field	Description
<code>_Swg</code>	Part name
<code>G1</code>	Instance name, any name.
<code>2</code>	Total number of pins
<code>2</code>	Number of pins given in this data section
<code>kk</code>	Signal name connected to k-pin, any name
<code>mm</code>	Signal name connected to m-pin, any name
<code>t_{close}</code>	The t_{close} time (see above)
<code>t_{delay}</code>	The t_{delay} time (see above)
<code>I_{margin}</code>	The current margin
<code>V_{flash}</code>	The flashover voltage
<code>?v, ?i, ?p</code>	Optional scope requests
<code>>v, >i, >p, >S</code>	Optional observe requests

In the 3-phase case, EMTWorks automatically appends the phase characters and creates 3 separate devices each with separate phase data.

The comma separated data fields are saved into ParamsA, ParamsB and ParamsC attributes of this device.

4 Steady-state model and initial conditions

If the time $t_{close} < 0$, it is assumed that this device is closed in the steady-state solution. It is an open-circuit otherwise.

5 Frequency Scan model

Similar to the steady-state.

6 Time-domain model

This device is modeled as a zero resistance when closed and as an infinite resistance when open.