



# How to protect your installation with Canalis

## > What is a surge voltage?

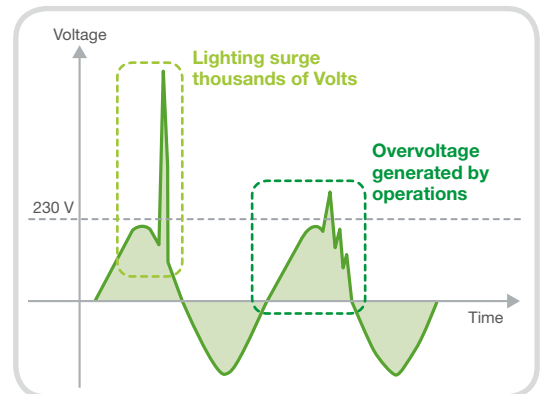
**A voltage surge is a voltage impulse or wave which is superposed on the rated network voltage.**

Surges are hardly observable, they have multiple consequences on machines and process. Some are serious with risks of injury, others are only material. In many cases the users have difficulties to investigate the causes.

**This type of voltage surge is characterized by:**

- the rise time (tf) measured in  $\mu\text{s}$ ,
- the gradient S measured in  $\text{kA}/\mu\text{s}$ .

These two parameters disturb equipment (electrical and electronic breakdown, unexpected stops...) and cause electromagnetic radiation. Furthermore, the duration of the voltage surge causes a surge of energy in the electrical circuits which is likely to destroy the equipment.



**There are two main types of voltage surge which may disturb electrical installations and loads:**

- atmospheric voltage surges due to a lightning and sufficient to destroy electronic components,
- industrial frequency voltage surges caused by contactor coils or other inductive loads switching and motor drives and have some consequences such as superposition of noise on analog signals that generate false indications, data change in memories, lower transmission speed due to repetitions, system reset.

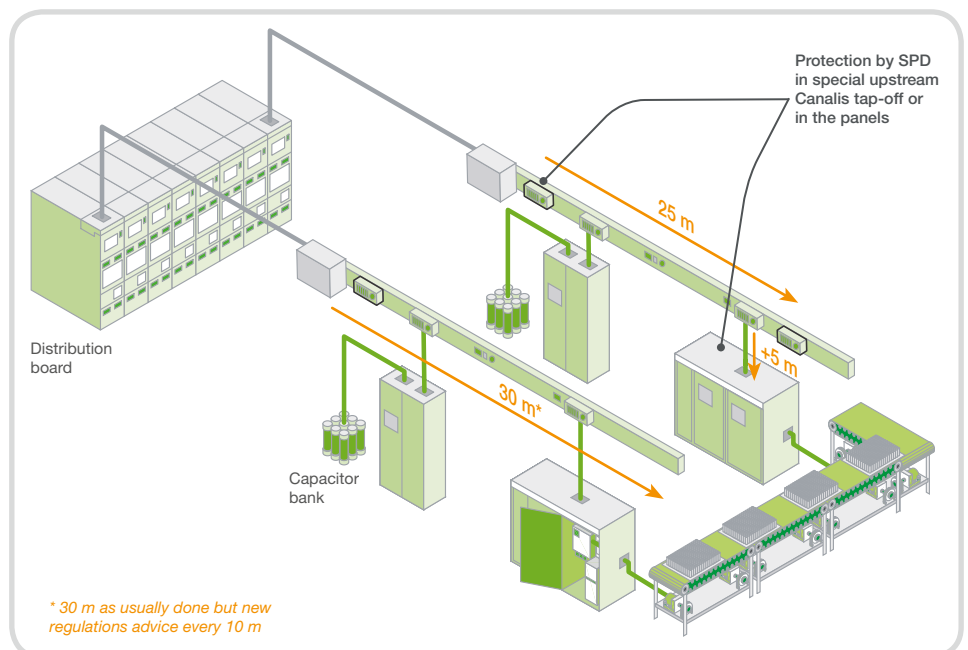
## > Where should the protection be installed?

Lightning or surges in electrical system create high frequency and have impact for the Electro-Magnetic Compatibility.

In traditional installation, a magnetic field exists and creates loop between PE and Neutral.

- With Canalis all the conductors (PE, Neutral and Phases) are conducted in the same way then the loop effect is reduced.
- On Canalis you just connect a fully equipped tap-off units on a free installed outlet.

In other case either the former installation took this protection into account or additional panels will be necessary and more complex to connect.





# What kind of solutions with Canalis?

To select the SPD according to circuit voltage - AC Power

## Type 1

Only used with LPS

Only used when LPS (lightning protection system) is present, generally installed in the main switchboard Okken or Prisma.

## Type 2

Used systematically

I<sub>cc</sub> max.: 10 kA



iQuick PRD 20r
1P+N (Cat. no A9L16295)
3P (Cat. no A9L16296)
3P+N (Cat. no A9L16297)

Common surge protection tap-off
Canalis KN (Cat. no KNBQPRD)
Canalis KS (Cat. no KSBQPRD)

## Type 3

Only used in addition to T2

Only used in addition to T2 if the loads are more than 30 m from the incoming T2 surge arrester (especially for machines using electronic devices).

I<sub>cc</sub> max.: 10 kA



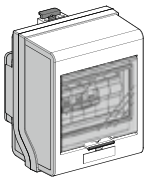
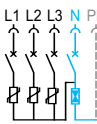
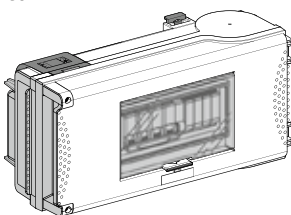
iQuick PRD 8r
1P+N (Cat. no A9L16298)
3P (Cat. no A9L16299)
3P+N (Cat. no A9L16300)

Common surge protection tap-off
Canalis KN (Cat. no KNBQPF)
Canalis KS (Cat. no KSBQPF)

Canalis offers tap-off units equipped with surge arresters for KN and KS ranges. They are pre-equipped with a modular Type 2 surge arrester, with integrated disconnection device. 2 versions of 3P+N protection are available, based on Quick PF10 or Quick PRD40r.

These units are ready for use, can be plugged directly into the busbar trunking and do not require any additional wiring.

**They should be positioned at least 30 m upstream of each load to be protected.** Tap-off unit covers can be lead sealed to prevent the SPD (Surge Protection Device) being tampered with by unauthorised persons.

Protection type	Diagram	Surge arrester cartridges	Connection	Permissible short-circuit	Max discharge current	Weight	Cat. No.
<b>Type 2</b> 		Fixed	Pre-wired	I <sub>sc</sub> (kA) 6	I <sub>max</sub> (kA) 10	(kg) 1.30	<b>KNBQPF</b> for Canalis KN from 40 to 160 A  <b>KSBQPF</b> for Canalis KS from 100 to 1000 A
<b>Type 3</b> 		Removable	Pre-wired	25	40	3.40	<b>KNBQPRD</b> for Canalis KN from 40 to 160 A  <b>KSBQPRD</b> for Canalis KS from 100 to 1000 A

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