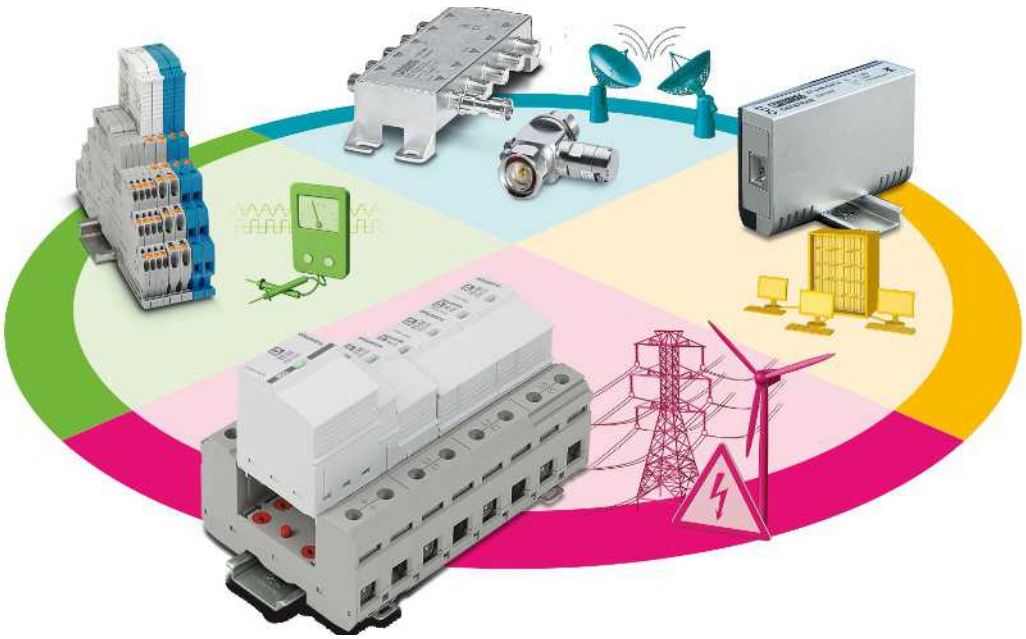
Easy protection

Joint protection of power supply and data lines

The use of surge protection for power supplies is necessary and often even mandatory. But that alone is not enough. Overvoltages can also cause damage via data lines. Therefore, please always consider the protection of power supply and data lines together.



Protection of the power supply. And what comes next?

Protecting the power supply is essential for the safe operation of an electrical system. It protects from overvoltages from the power grid and is observed and installed in many electric installations. But what about our communication interfaces? Overvoltages can also be transmitted via telephone lines. In that case, any connected devices such as routers or phone systems can become damaged.

This does not only affect the telephone network. Overvoltages can be transmitted via just about any line. Fiber-optic cables are the only exception. Unfortunately, communication devices are particularly vulnerable. Overvoltages can be quick to significantly interfere with such devices' low signal voltages.

In buildings with exterior lightning protection systems, the protection of all lines routed from unprotected areas

into the protected building is mandatory according to IEC 62305. Protection is recommended for all other systems. That recommendation should be taken to heart in these times of continually growing interconnectivity.

But what is actually protected and what isn't? Areas that cannot directly be struck by lightning are protected. To this end, the lightning protection system is positioned such that it prevents a direct strike into the building. This creates a protected space below the lightning protection system. This means areas on top of the roof or on exterior walls can also be protected.

Satellite dishes, exterior sensors, exterior lighting and other electric devices should always be installed in protected areas. But sometimes that's simply not possible. Parking space lighting can rarely be installed in a protected area. Connections to other buildings cannot always be routed only in protected areas. But it is important to ensure that no overvoltages can enter the protected building via such lines. Therefore, surge protection is required here.

Protection of networked systems

Interconnecting the various systems in a building has significantly increased the number of vulnerable devices. Even in residential properties it has become difficult to keep track of all components involved. This is even more difficult in larger buildings. It's nearly impossible to protect all devices. This requires clever protective strategies adapted to all demands.

First, protect all lines routed from outside, from the unprotected area, into the building. Best example: The DSL line or IT network connections. In a second step. the lines and systems installed in the protected area are examined with regards to their importance and expendability. A well-targeted surge protection often increases availability in a surprisingly simple way.

DSL line

A router failure is more than just a nuisance. It is often impossible to keep working without phone and Internet connections.

Our solution: Surge protection for analog and digital telecommunications interfaces (VDSL up to 300 Mbps, G.fast up to 1.5 Gbps)
TTC-6-1X2-TELE-PT
Order No.: 1077106

Important network connections

If automation systems are used in larger plants, they usually are connected to a network. The risk of having malfunctions couple to these lines increases with each meter, even if the lines are installed entirely in the building, i.e., in the protected area.

Our solution: Patch panel with surge protection PP-RJ-SCC-F
Order No.: 2703022

Heating control

Modern heating systems keep getting more efficient and environmentally friendly. This is only possible through modern technology and sophisticated control electronics.

We often only realize how important a good heating system is when it fails. Therefore, don't forget about surge protection in this context.

Our solution:
Surge protection type 2/3 with integrated status indicator and remote signaling
PLT-SEC-T3-230-FM-PT
Order No.: 2907928

To protect the heating system, not only the mains connection, but also the exterior sensor and other measurement, control and regulating lines should be protected.

Our solutions:
Surge protection for 2-wire measurement, control and regulating lines with integrated status indicator, nominal voltage 24 V DC
TTC-6P-1X2-24DC-PT-I
Order No.: 2906815

Surge protection for 3-wire measurement, control and regulating lines with integrated status indicator, nominal voltage 24 V DC
TTC-6P-3-24DC-PT-I
Order No.: 1061383

Surge protection for 4-wire measurement, control and regulating lines with integrated status indicator, nominal voltage 24 V DC
TTC-6P-4-24DC-PT-I
Order No.: 1106014

SAT system

Even in the era of streaming services, it's hard to imagine not having a SAT system. They grow increasingly complex, especially in multi-family homes. Multiple antenna outlets within one apartment are already considered standard. This makes the total number of connections increase rapidly – which is challenging for the distribution infrastructure. High-performance multiswitches and cascades ensure a distribution with the lowest possible attenuation.

In a multi-family home, multiple residents use a shared SAT system. Any failure is guaranteed to cause friction. Surge protection is a good investment when it comes to calming your nerves.

Our solution: Surge protection for antenna distributors in satellite systems.
C-SAT-BOX
Order No. 2880561

Server

In networked systems, servers are the core of the IT infrastructure. Any failure is bound to cause a lot of trouble, often at great cost. Therefore, it's simply inconceivable to operate servers without surge protection. Especially since good protection is so simple.

Our solution: Type 3 surge protection for universal installation in installation boxes, sill-type trunking, underfloor installations.
BLT-T3-230-A
Order No.: 1038841

However: Always protect all lines leading to a server. That means not just protecting the power supply with an SPD type 3, but also the network lines. Performance is key in this context: Protection with reduced performance is no solution at all.

Our solution: Surge protection for Gigabit Ethernet (up to 10 Gbps), also suitable for Power over Ethernet (PoE+)
DT-LAN-CAT.6+
Order No.: 2881007

But protecting a server isn't that easy, is it?

To operate a server, a number of other necessary devices are installed in a server cabinet, such as a UPS, patch panels, and switches. To protect the entire server cabinet, it is necessary to protect all lines that are routed into the cabinet. For patch panels, that can mean several dozen lines.

It is not always necessary to protect all components in the server cabinet. To protect the data, it is sufficient to provide surge protection to the actual server. In the case of failure of a switch or patch panel, the damaged device can be replaced. This, of course, is only possible if the network is dispensable during the time required for the replacement. Weigh your costs and benefits. However, the costs of surge protection are significantly reduced by such considerations. It is sufficient to protect the lines routed directly to the server. These often include just one or two network cables and a power supply.

The list of examples can easily be extended. But the approach is always the same.

Here are some questions to help you decide:

- Is this a sensitive device which would be difficult to do without?
- Is there increased risk due to long lines or installation that is not completely EMC-compliant?
- Which lines are connected to the device to be protected?
- Can you reduce the number of lines with a clever arrangement?

All considerations should be guided by costs and benefits. A thorough consultation by experienced specialists is indispensable in this context.

Which surge protective devices are required?

Just as with the protection of the power supply, the SPDs used to protect data and communication interfaces can be divided into various types:

Power supply	Data and communication interfaces
Type 1 SPD	Type D1 SPD
Type 2 SPD	Type C2 SPD
Type 3 SPD	Type C1 SPD

In the area where you are using a type 1 SPD to protect from overvoltages from the power grid, you will need a type D1 SPD to protect the signal or data lines.

The same is true for the type C2 and C1 SPDs. However, most of our surge protective devices to protect signal or data lines are combined lightning current and surge arresters, which cover the areas D1, C2, and C1.

TT 07-21.002.L6 2021-04-15

Find out more

For more information on the proper selection of suitable surge protective devices, consult our information sheets at **phoenixcontact.com/spd-building**

phoenixcontact.com