



### Why surge protection for petrol stations is critical

**Petrol stations are highly vulnerable to lightning strikes and surges due to their extremely sensitive control and display systems. The necessity of a lightning protection system is essential when considering the highly flammable sources of ignition on site. Prudent building regulations dictate that structures where a lightning strike can easily occur or can have serious consequences due to their location, type of construction or use, must be equipped with permanently effective lightning protection systems. Operators of petrol stations must ensure that employees, customers and pedestrians are protected against fire and explosion risks caused by fuels and vapours.**

The IEC 60364-1 (HD 60364-1) standard specifies that “property shall be protected against damage as a consequence of overvoltages such as those originating from atmospheric events or from switching”. The surge protective devices recommended in this standard must not be installed in Ex zones (zone 0, 1 and 2), if any. If surge protective devices are located in hazardous zones, adequate measures (e.g. approved enclosures and / or approved surge protective devices) must be taken to avoid ignition.

A professional external lightning protection system, consistent lightning equipotential bonding and additional surge protection measures are required to protect petrol stations from direct lightning strikes.



Equipment located in the forecourt, such as the petrol price display, and the incoming utility line are vulnerable to direct lightning strikes. Therefore, lightning current arresters should be installed at the entrance point into the building.

The fuel dispensers are generally located underneath a projecting metal roof and are thus protected against direct lightning strikes. For this reason, and due to the intermeshed earth-termination system, surge arresters are installed at the entrance point of the lines into the petrol station building and at the entrance point of the lines into the fuel dispenser to protect the lines leading to the fuel dispenser electronics.

It is important to interconnect all metal constructions, such as pipes, fuel dispenser enclosures, and tanks, and to connect them to the earth-termination system of the petrol station building. The earth-termination system should have an earth resistance of  $< 10 \Omega$  (recommendation). Spark gaps for use in hazardous areas must be used to connect petrol stations with cathodic corrosion protection to the earth-termination system.

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