

Condensation-free distribution board enclosure suited to outdoor use

Spelsberg's AK Air condensation-free enclosure for electrical distribution boards is increasingly gaining prominence for outdoor use, in addition to indoor installation. The enclosure's integrated ventilation system expels virtually all condensation, protecting distribution boards from short circuit and corrosion. The enclosure also provides an IP65 rating, protecting internals from heavy rain. A modular design also enables fast and simple installation with a tool-free ability to connect multiple units together.

Typical to an outdoor location, when air is warmed inside an enclosure and its walls are cooled by a drop in outside temperature, air reaches its dew point and condenses. This challenge is more prevalent if greater differences in temperature are created, for example if the enclosure hosts heat-emitting equipment, like an electrical circuit board.

These conditions can also be present if the enclosure is located in a warm, sunny location by day, with a contrasting heat drop at night, typical to solar farms. The high ingress protection required to prevent rain water entry can also exacerbate the problem as the sealing further reduces the escape of warm air build up.

The result of condensation is unwanted moisture within the enclosure. If the enclosure is protecting electrical equipment, this can result in short circuits and corrosion that can cause safety hazards, damage and downtime.

To protect against condensation, Spelsberg's AK Air enclosure is gaining prominence for outdoor use because of its integrated ventilation system. The design incorporates a lower valve that channels cool air into the enclosure to help equalise the internal air temperature. An additional valve, positioned higher in the enclosure, expels warmer, moisture-prone air. The air exchange system also reduces air pressure within the enclosure to avoid pressure build up that can accelerate the air temperature increase.

The maintenance-free air exchange system includes a rotating cover, and the valve vent seals ensure that the enclosure achieves IP65 rating, able to withstand the equivalent of low-pressure water jets as well as physical particulates. The polycarbonate enclosure also meets IK08, meaning it provides high resistance to impact. The enclosures also meet UL-EU certification and can be used in temperatures ranging from -35°C to 80°C.

The enclosure can be used across virtually all outdoor locations, and AK Air is also tested for ammonia resistance to the German DLG standard. This means the enclosure can withstand the influence of ammoniacal stable air for at least 20 years, making it suited for use on farms and in agricultural environments.

Electrical distribution in indoor locations can also require protection against condensation if the installed environment has a relatively cool ambient temperature, while higher ambient temperatures can give rise to humidity. This can turn air into vapour, depositing water on colder surfaces as a result. This means that the AK Air enclosure is also commonly used in factory environments, as well as commercial and residential settings.

The enclosure's flexibility also enables quick installation. Available in a wide range of sizes, mounting is achieved via three keyhole fittings or external lugs. For larger installations, up to 14 modules can be combined together on height adjustable mounting rails with knock-out flanges that click-in-place with tool-free installation. Additional knock-out cable routing points further enable flexible wiring.

Spelsberg can also customise AK Air enclosures with its on-site CNC machining service, and bespoke enclosure installations can also be designed and manufactured. The design team is also available to advise how to avoid condensation with a well planned enclosure layout.

About Spelsberg

Spelsberg is one of the largest manufacturers of electrical enclosures in the world. With over 4,000 enclosures available as standard and further customisation possible, it offers solutions for almost any application.

With the largest supply of non-metallic enclosures, ex-stock in the UK, its products are often available for delivery within 24 hours; customisation is possible on any product, including bespoke entries, engraved corporate logos or fitted terminals, within 48 hours. Products can be ordered direct from Spelsberg or from most leading supply specialists including RS, Rapid, Farnell and CPC.

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