

ACS550 ALTITUDE DERATING ABOVE 6600 FEET

Description:

This document explains altitude derating for altitudes above 2000m (6600ft) for the ACS550.

Altitude Derating:

What is the recommendation for an ACS550-U1 for a 50HP 460V 65A motor installed at 10,000 feet. Application is for a centrifugal pump. Our standard 1%/100m only applies up to 6600ft per the manual. What is the derate above 6600 feet?

This is the response from the engineering group:

From the ACS550 user manual:

Altitude derating

In altitudes 1000...4000 m (3300...13,200 ft) above sea level, the derating is 1% for every 100 m (330 ft). If the installation site is higher than 2000 m (6600 ft) above sea level, please contact your local ABB distributor or office for further information.

The ACS550 drive was designed with the possibility of the drive being installed on corner grounded networks. When using corner grounded networks the voltage can be the square root of 3 times the phase voltage in some of the phases. This requires more clearance to handle the higher voltage. According to Paschen's laws the breakdown voltage decreases when atmospheric pressure decreases but it has been proven by ABB R&D that with the 8mm creepage distances designed into the ACS550 there is still lot of safety margin (compared to test voltage impulse levels) for installations at 10000ft.

If an ACS550 is installed on a corner grounded network, it does not fulfill safety isolation clearances according to IEC/EN 61800-5-1 but UL safety standard UL508C is still fulfilled.

As a summary, ACS550 can be installed at 10,000m with 20% (1% for every 330ft above 3300ft) derating.

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