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Environmental Constraints for ABB Distribution Automation Products in Storage and Transportation

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Scope

This document sets environmental constraints for ABB Distribution Automation products for storage and transportation.

Background

On their way to the final destination our products are often transported over long distances, during which they encounter different environmental stress situations. The products may also sometimes be stored for long periods of time waiting for installation and commissioning. These storage and transport conditions have to be carefully considered in order to assure that the products will function properly when finally taken into use.

Environmental constraints below are based on standards IEC 60721-3-1 (1997-02) for storage and IEC 60721-3-2 (1997-03) for transportation. The environmental constraints in these standards are the maximum values, which can occur occasionally, but not continuously.

The products shall be transported and stored in their original factory packaging. Where this is not possible, for example in the case of products are installed as parts of pre-assembled switchgear units, it will be essential to apply proper protection for these units and to follow environmental constraints specified herein carefully. Special attention shall be paid to prevent water condensation during temperature excursions.

Storage (max 12 months)

Climatic conditions	1K2	Closed weather protected location, temperature controlled within the range from +5°C to +40°C, max rate of change 0.5°C/min. Relative humidity max 85%, no condensation nor frost allowed.
Special climatic conditions	1Z1	Negligible heat radiation
Biological conditions	1B1	Negligible presence of mould and fungus, ingress of rodents prevented
Chemical active substances	1C1L	No salt, no seaside mist, Sulfur Dioxide 0.1 mg/m ³ , Hydrogen Sulfide 0.01 mg/m ³ , Chlorine 0.1 mg/m ³ , Hydrogen Chlorine 0.1 mg/m ³ , Hydrogen Fluoride 0.003 mg/m ³ , Ammonia 0.3 mg/m ³ , Ozone 0.01 mg/m ³ , Nitrogen Oxides 0.1 mg/m ³
Mechanically active substances	1S1	Ingress of sand prevented, presence of dust minimized
Mechanical conditions	1M1	Insignificant vibrations

ABB Oy

Distribution Automation	Visiting address	Address	Telephone	Internet
Domicile: Helsinki	Strömberg Park,	P.O.Box 699	+358 10 22 11	www.abb.com/fi
Business ID: FI07634030	Muottitie 2 A	FI-65101 Vaasa	Telefax	www.abb.com/substationautomation
	Vaasa	Finland	+358 10 224 1599 Management, HR & Economy	e-mail
	Finland		+358 10 224 1094 Sales & Marketing	first name.lastname@fi.abb.com

Transportation

Climatic conditions	2K2	Temperature range from -25°C to +60°C, direct transfer between temperatures -25°C /+25°C possible, relative humidity 75% at +30°C
Biological conditions	2B1	No presence of flora or fauna
Chemical active substances	2C1	No sea salts, Sulfur Dioxide 0.1 mg/m ³ , Hydrogen Sulfide 0.01 mg/m ³ , Nitrogen Oxides 0.1 mg/m ³ , Ozone 0.01 mg/m ³ , Hydrogen Chlorine 0.1 mg/m ³ , Hydrogen Fluoride 0.003 mg/m ³ , Ammonia 0.3 mg/m ³
Mechanically active substances	2S2	Sand in air 0.1 g/m ³ , dust sedimentation 3.0 mg/(m ² h)
Mechanical conditions	2M1	Free fall max 25 cm, modest vibration assumed

Preconditioning

Products, that have been in high temperature and humidity conditions for more than 7 days, need to be preconditioned before switching auxiliary power on to remove moisture absorbed within dielectric materials, by keeping them 8 hours or more in following ambient conditions:

Stable temperature at least +20°C, but below allowed maximum operating temperature and relative humidity continuously under 50%.