DISTRIBUTION SOLUTIONS

Fuse-links type CEF, CEF-S, CEF-VT, CMF

Storage, installation and inspection manual

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Your safety first – always! All legally recognized standards, the connection conditions of the local electrical utility and the applicable safety at work regulations must be respected.

- Pay special attention to the hazard notes in the instruction manual marked with this warning symbol.
- Make sure that under operation condition of the fuse-link the specified data are not exceeded
- Keep the instruction manual accessible to all persons engaged with installation, operation and inspection.
- The user's personnel must act responsibly in all matters affecting safety at work and the correct handling of the fuse-links.
- There are hazards of electrical shocks and burns whenever working in or around electrical equipment. Turn off power before performing any inspection or maintenance operations. Check line terminals to verify that the equipment is de-energized and grounded. Check terminals to ensure that no back-feed condition exists.

Always follow instructions given in this manual and follow the rules of good engineering practice! Hazardous voltage can cause electrical shock and burns. Disconnect power, then earth and short-circuit before proceeding with any work on this equipment.

If you have any further questions on this instruction manual, members of our field organization will be pleased to provide the required information.

1. General information
Fuse-links type CEF, CEF-S, CEF-VT and CMF are intended to use in medium voltage applications, together with medium voltage fuse-bases, fuse compartments or fuse-switch combinations. Fuse-links dimensions are according to DIN 43625 or IEC 60282-1 Type I. Fuse-links are designed to work in indoor and outdoor applications with minimum ambient temperature -40°C and maximum ambient temperature 40°C (without fuse-link derating). Other service conditions according to IEC 60282-1 guidelines - Clause 2.1 Normal service conditions.

2. Standards
Fuse-links type CEF, CEF-S, CEF-VT and CMF are designed according to following standards:
– IEC 60282-1:2009 + Amd.1:2014
– DIN 43625

3. Transport and storage instructions
In the case of small quantities order (up to few pcs), fuse-links are packed together in single cardboard. For larger orders fuse-links are packed first separately in individual cardboards and finally packed on wooden pallets with cardboard sides and secured by stretch wrap. In special cases fuse-links can be packed in wooden boxes. Individual cardboards do not provide protection against transport exposures and are used only for storage and internal transport.
Fuse-links shall be always transported in package. During the transport the cases with fuse-links should be handled with care, according to precautionary markings and protected against shocks and moisture.
Fuse-links must be stored in dry place, in ambient temperature from -40°C up to 50°C and relative humidity up to 85%. The ambient air is not excessively polluted by dust, smoke corrosive or flammable gases, vapour of salt.

4. Installation and replacement
Before fuse-links installation in each phase, the following points shall be checked:
1. Fuse-link is not damaged; there is no sand inside fuse-link carton.
2. Fuse-link rated data from the nameplate and fuse-link dimensions are according to documentation or the same as on replaced

fuse-link. Fuse-link is selected according to IEC 60282-1 (chapter 9) and related standards.

3. Fuse-link measured resistance is according to ABB catalogue or routine test. Fuse-link resistance shall be measured with a milliohmmeter in ambient temperature about 20ºC.
4. Fuse-base contacts and earth terminals are in good shape, secured with protective agent; insulators are not polluted.
5. It is recommended to install and replace fuse-links in an off-load condition.
6. If fuse-link is installed in fuse-switch combination, it is recommended to test switch release by a dummy fuse-link, before mounting new fuse-link or replacing old fuse-link.
7. After fuse-link is mounted, special care should be taken to ensure that the fuse-link is properly mounted in fuse-base contacts and striker is directed to releasing/signaling device (if any).
8. According to IEC 60282-1 it is suggested to replace all three fuse-links in three-phase network, even if one or two fuse-links has operated, unless it is guaranteed that no over-current has passed trough the unmelted fuse-links. That over-current can greatly limit fuse current carrying capacity and be a reason of future malfunctions.
9. Using a different type (i.e. having different classes and/or coming from different manufacturers) fuse-links in one three-phase set is not advised, even if all fuse-links have the same ratings on the nameplates.

WARNING – After mounting it has to be checked and ensured proper fixing stiffness and sufficient clearing distances (phase-to-phase and phase-to-ground) according to valid rules.

5. Inspection*

WARNING – All inspection and any other possible maintenance activities have to be performed in off-load conditions, using personal protective equipment and insulation stick. It is recommended to perform inspection and any other possible maintenance activities in no-voltage conditions and proper grounding according to valid rules.

During inspection work following points shall be followed:

- Fuse-links state and replacement melted fuse-link if necessary. According to IEC 60282-1 it is suggested to replace all three fuse-links in three-phase network, even if one or two fuse-links has operated, unless it is guaranteed that no over-current has passed through the unmelted fuse-links. That over-current can greatly limit fuse current carrying capacity and be a reason of future malfunctions.
- Insulators condition check (no mechanical damages, no pollution on the surface).
- Terminals condition check (no pollution, no coatings damage or corrosion, no burns caused by short-circuit currents).
- Fuse-clips condition check (no pollution, no coatings damage or corrosion, no burns caused by short-circuit currents).
- Screw connection tightness check.
- Protective coatings check (no damages, no corrosion).
- Insulations surface cleaning if necessary.
- Connections secure by protective agent if necessary.

*Please refer to BS EN 13306:2010, clause 8, for maintenance types definitions.

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