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NEW ULTRA-FAST EARTING SWITCH FOR MV SWITCHGEAR

ABSTRACT *The appearance of the short circuit current inside of MV switchgear is the most serious fault associated with generation of high temperature and pressure as well as emission of gases produced by the electric arc and melted elements inside of the switchgear. The ultra-fast earthing switch (UFES) developed by the authors will be able to reduce the above mentioned effects due to direct grounding of the three phases current carrying bars. The operation time of the UFES should be as short as possible to reduce the arc energy dissipated inside of the switchgear. Therefore, a prototype of the UFES was built in the Electrotechnical Institute laboratory and was experimentally validated. The UFES developed in the Electrotechnical Institute for 24 kV with the required operating time of about 2 ms can be used several times with no need to replace any of its parts. It is ecological, environmentally friendly and is safe for the staff working nearby. In the UFES, the most important elements used are the ultra-fast actuator and the vacuum chamber as a switching element, therefore the UFES can operate many times without necessity to replace any of its parts. This is the greatest advantage of this solution. The earthing switches produced presently have the operating time of about 2 ms, but the contacts are actuated by means of exploding materials, therefore after operation the switch has to be replaced with a new one.*

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