

## Topic: Units with DC link capacitors

This information describes the protection of the DC link capacitors.

### Problem, reason

Switching at the input without waiting of an undervoltage error (E.UP) causes heavy wear of the switching contacts. Furthermore, fuses and overcurrent protection organs can trigger.

By means of the wide input voltage range of inverters the unit remains in operation for some seconds after switching off the mains voltage (depending on the load).

Error undervoltage (E.UP) is released and the charging current limit is restarted only if the DC link voltage drops under the tripping level.

If the mains voltage is connected again before switching on of the charging current limit, very high current flows through the relay contacts into the strongly discharged DC link capacitors. Reduced life cycle and defects at the relay contacts, as well as releasing of fuses are the consequences.

### **Measures**

An input of the inverter is controlled via an auxiliary contact (generally terminal 11/12). This input is programmed as error input in the inverter. Parameter (e.g. at F5-G -> Pn.65) determines that instead of error message „external error“(E.EF), error „undervoltage“(E.UP) is released. Thus the charging current limit is immediately switched on.

If no free input is available for external fault sensing, the time for the worst case (modulation switched off) must be determined, that the inverter requires to release the undervoltage. Within this time the machine builder must prevent a restart by external means.



**Karl E. Brinkmann GmbH**

Försterweg 36-38 • D-32683 Bartrup  
fon: +49 5263 401-0 • fax: +49 5263 401-116  
net: [www.keb.de](http://www.keb.de) • mail: [info@keb.de](mailto:info@keb.de)

© KEB	
Document	0400-0008
Language	GBR
Date	02-2016