Techsys Corporation

Rectifying Earth Faults on Danfoss VFD's

In some cases the Danfoss VFD may trip out on a Earth Fault which is reality there is no fault.

In these cases it is suggested to try the following procedure to compensate for any offsets that may have developed in the current sensors

The control card determines Earth Fault by summing up the outputs of the three Hall effect current sensors on its' U,V,W outputs. Ideally the sum should be zero (What goes out on the U phase comes back in on the V and W phases).
The Earth fault level trip is typically 20 to 40% of the rated output current of the drive.

Sometimes the U,V,W current sensors can develop offsets in their amplifier outputs over time and this can give intermittent Earth Fault trips.
This typically occurs when a drive is installed for years in environments where there are large ambient temperature changes (e.g. pumping sheds that go from 5C to 60C)

By doing a Manual Initialisation, the control card reads these current sensors offsets and takes them into account when determining Earth Fault.
The procedure should only take 5 minutes but the motor will need to be stopped and cycle all power to the drive, it will probably need two people to do this - one to hold the buttons, one to turn on the power.

If the problem keeps re-occurring after doing the Manual Initialisation, there is either
- a large offset in the current sensors outputs
- a problem with the control card
- a problem with the +/-15 volts power supply on the power card that supplies the sensor circuit
- a bad connection between the control card and sensors

If this is the case then a service call will be required to determine if the current sensors or control card need to be replaced.

The step for re-calibration are as follows-

1/ Take of copy of drive parameters using "ALL to LCP" in parameter 0-50

0-50 LCP Copy		
Option:		**Function:**
[0] *	No copy	No function
[1]	All to LCP	Copies all parameters in all set-ups from the frequency converter memory to the LCP memory. For service purposes it is recommended to copy all parameters to the LCP after commissioning.
[2]	All from LCP	Copies all parameters in all set-ups from the LCP memory to the frequency converter memory.
[3]	Size indep. from LCP	Copies only the parameters that are independent of the motor size. The latter selection can be used to programme several frequency converters with the same function without disturbing motor data which are already set.

2/ Do a manual initialisation as follows

1. Disconnect from mains and wait until the display turns off.
2a. Press [Status] - [Main Menu] - [OK] at the same time while power up for LCP 102, Graphical Display
2b. Press [Menu] while power up for LCP 101, Numerical Display
3. Release the keys after 5 s.
4. The frequency converter is now programmed according to default settings.

This procedure initialises all except:

15-00	Operating Hours
15-03	Power-up's
15-04	Over temp's
15-05	Over volt's

NB!
When you carry out manual initialisation, you also reset serial communication, RFI filter settings (par. 14-50) and fault log settings.
Removes parameters selected in *Personal Menu*.

NB!
After initialization and power cycling, the display will not show any information until after a couple of minutes.

3/ You should be able to see an "Alarm 80 -drive initialised" – use RESET key to clear this

4/ Cycle power to drive again and see that the display comes up without any alarms

5/ Copy parameters back to control card using "ALL from LCP" in parameter 0-50

0-50 LCP Copy		
Option:		**Function:**
[0] *	No copy	No function
[1]	All to LCP	Copies all parameters in all set-ups from the frequency converter memory to the LCP memory. For service purposes it is recommended to copy all parameters to the LCP after commissioning.
[2]	All from LCP	Copies all parameters in all set-ups from the LCP memory to the frequency converter memory.
[3]	Size indep. from LCP	Copies only the parameters that are independent of the motor size. The latter selection can be used to programme several frequency converters with the same function without disturbing motor data which are already set.

6/ Cycle power to drive again and then press AUTO START button and test operation