ACS800

Capacitor reforming guide

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Introduction

This guide applies to single drive frequency converters and multidrive inverter units, referred as converters later in this document.

Converter DC link capacitors need to be reformed (re-aged) if the converter has been non-operational for more than one year. Without reforming capacitors may get damaged when the converter starts to operate. It is recommended to reform the capacitors once a year.

Note: Ensure that converter is clean and dry (no condensation) before starting the reforming.

How to check the converter age

Converter serial number defines the week when the converter has been manufactured:

- 7 digits: e.g. 3260034, 3 denotes manufacturing year (2003), 26 manufacturing week and 0034 running manufacturing number.
- 8 digits: e.g. 14250125, 1 denotes manufacturing country (1= Finland), 4 manufacturing year (2004), 25 manufacturing week and 0125 running manufacturing number.
- 10 digits: e.g. 1063200725, 1 denotes manufacturing country, 06 manufacturing year (2006), 32 manufacturing week and 00725 running manufacturing number.

Reforming time

The intermediate circuit of the converter is connected to its nominal voltage for the reforming time to “wake up” the capacitors. The reforming time required depends on how long the converter has been stocked (non-operational).

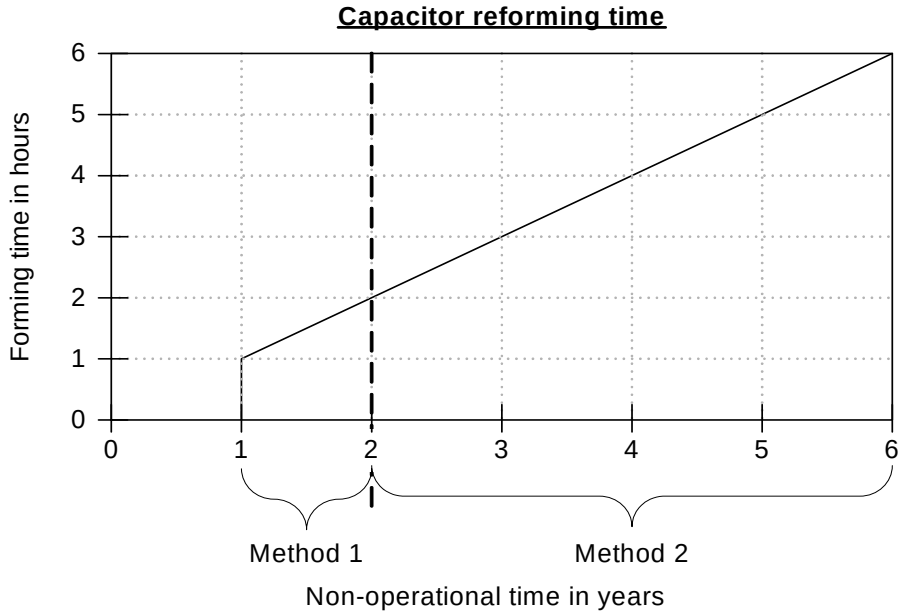

Figure 1. Capacitor reforming time for Method 1 and Method 2

Converters stocked (non-operational) less than 2 years

Use method 1 (below) for capacitor reforming if the converters have been stocked (non-operational) for less than two years.

Switch the power on to the converter for a time given in Figure 1 (Method 1). The converter “wakes up” its capacitors on its own. Power the multidrive inverter units and the inverter modules up once a year to keep the capacitors in operational condition.

Converters stocked (non-operational) for 2 years and over

Use method 2 A or method 2 B (below) for capacitor reforming if the converters have been stocked (non-operational) for two years or longer.

WARNING! The inverter module AC or DC supply voltage must be disconnected by removing the DC/AC fuses or by opening the disconnecting switch/fuse switch.

Method 2 A:

Capacitors are reformed via a composition of a rectifier and a resistor circuit, which is connected to the converter DC link. The reforming circuit is shown below. Component values for different voltages are given in the table below. See the reforming time from Figure 1.

WARNING! The converter supply must be disconnected while reforming circuit is connected.

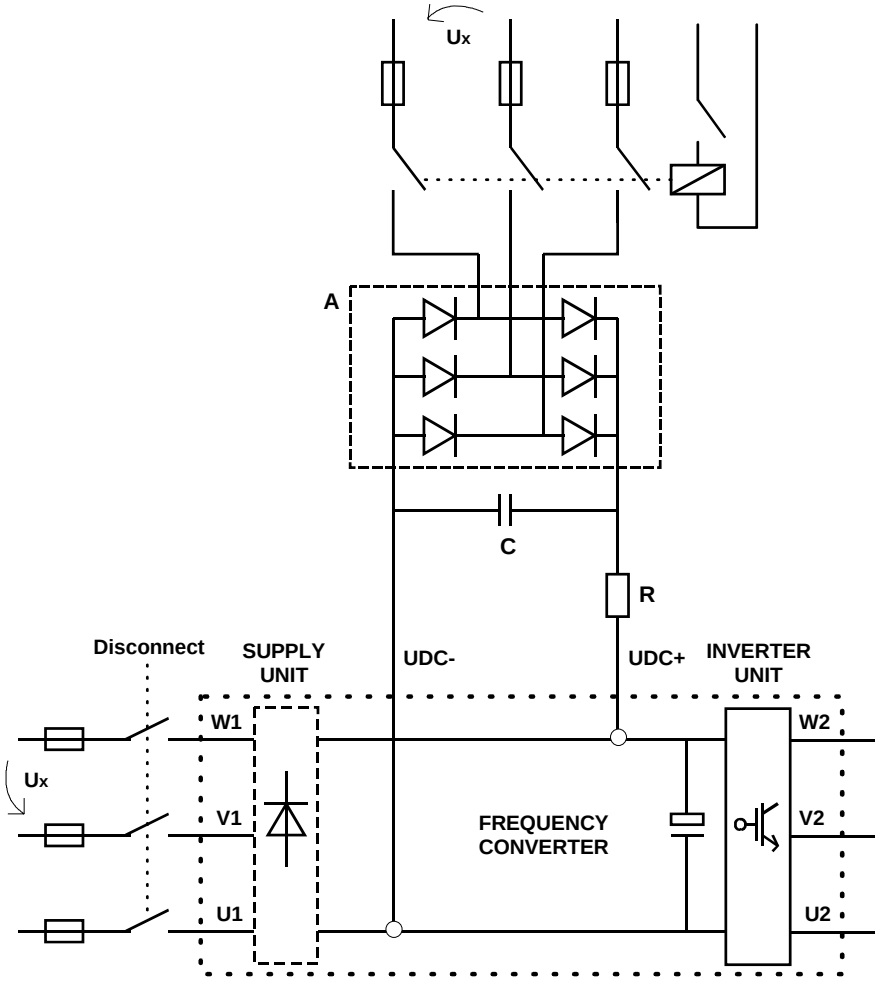

Figure 2. Reforming circuit for method 2 A

Table 1. Component values for reforming

	Recommended components		
	A	R	C
380 V < U× < 415 V	SKD 82/16	220 Ohm / 700 W	22 nF / 2000 V
380 V < U× < 500 V	SKD 82/16	470 Ohm / 1200 W	22 nF / 2000 V
525 V < U× < 690 V	SKD 82/16	680 Ohm / 1700 W	22 nF / 2000 V

Method 2 B:

Capacitor reforming is based on DC power supply, which is connected to converter DC link. Power supply current charges the converter capacitors. If power supply cannot limit the current, voltage is increased gradually (with e.g. 100 V steps). Maximum recommended reforming current is 500 mA. An appropriate reforming voltage is (1.35 ... $\sqrt{2}$) × U_X (U_X = Nominal supply voltage of the converter (VAC). See reforming time from Figure 1.

WARNING! The converter supply must be disconnected while reforming circuit is connected.

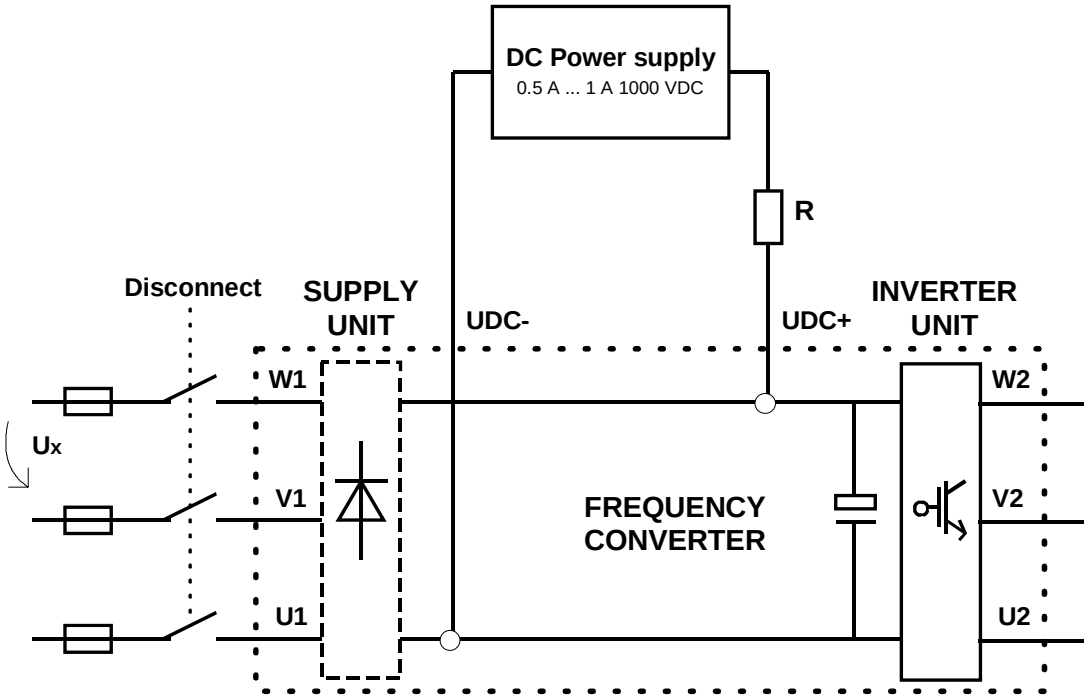

Figure 3. Reforming circuit for method 2 B. (R = 100 Ohm / 500 W)

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