

# DAAB DB406 INSTRUCTION MANUAL FOR THE VFD-EL FREQUENCY CONVERTER



*For the DAAB EP104 automatic control  
system with program version 4.06*

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FAAC Nordic AB

BOX 125, SE-284 22 PERSTORP SWEDEN TEL. +46 435 77 95 00 FAX +46 435 77 95 29

[www.faac.se](http://www.faac.se)

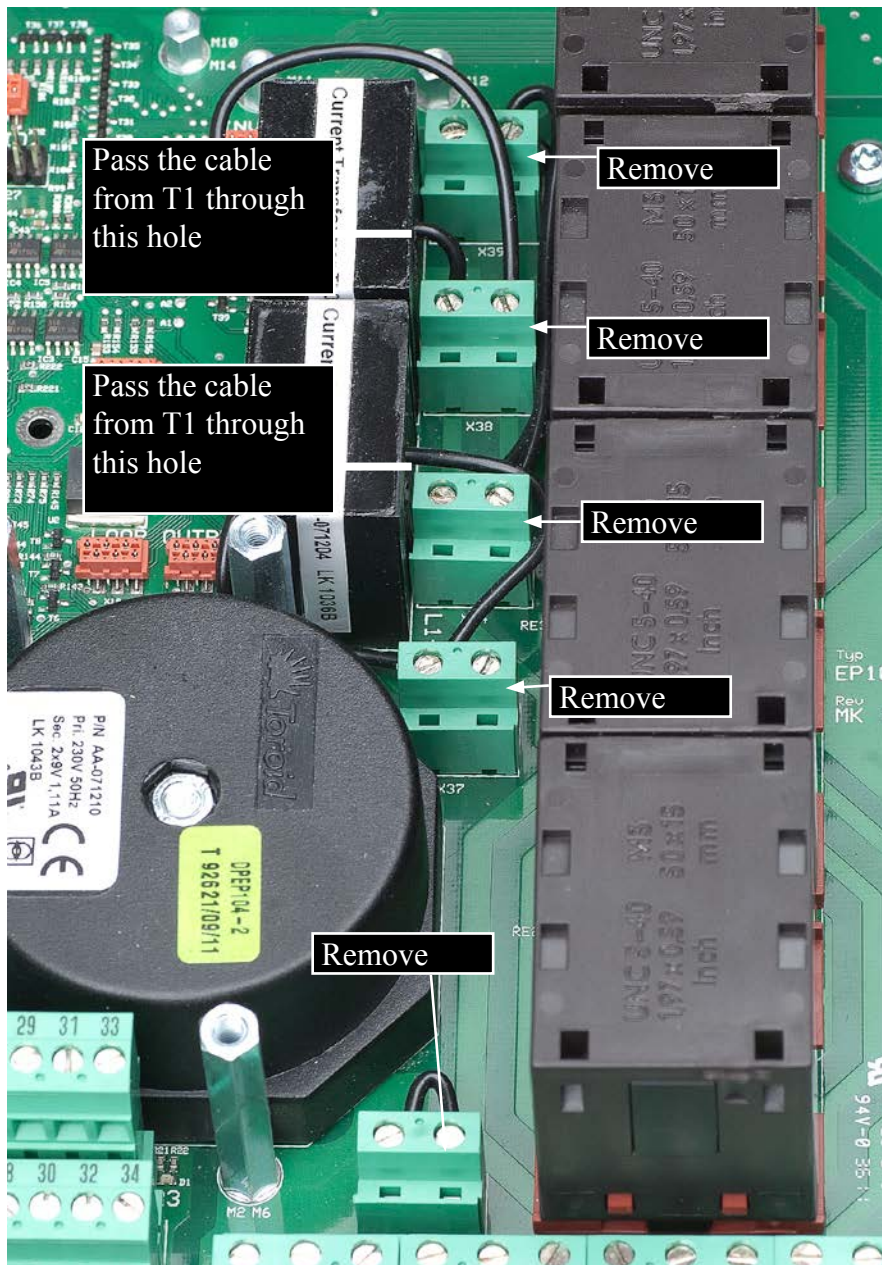
## Installation

1. Disconnect the power to the EP104
2. Screw the DB406 board into place on the spacers on the EP104 using two M3x5 screws.

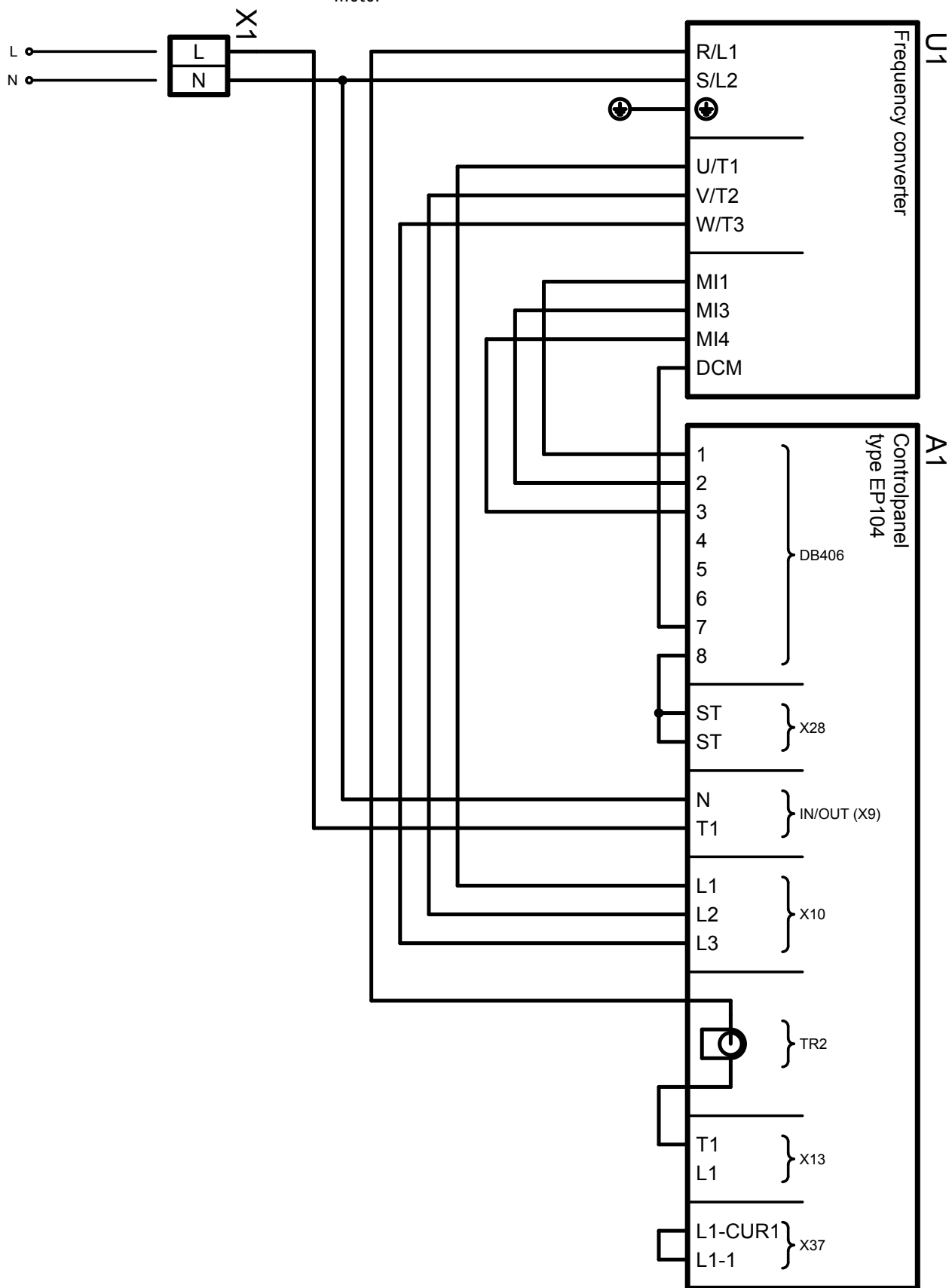
## Connection

The frequency converter being connected to the DB406 must be a DELTA VFD-EL or equivalent. This frequency converter is based on negative logic. Connect the frequency converter according to the example below which shows a DELTA VFD-EL. Refer to the diagram on the next page for full details regarding signals and connecting electric motors. The information below relates to the connections illustrated on the following page.

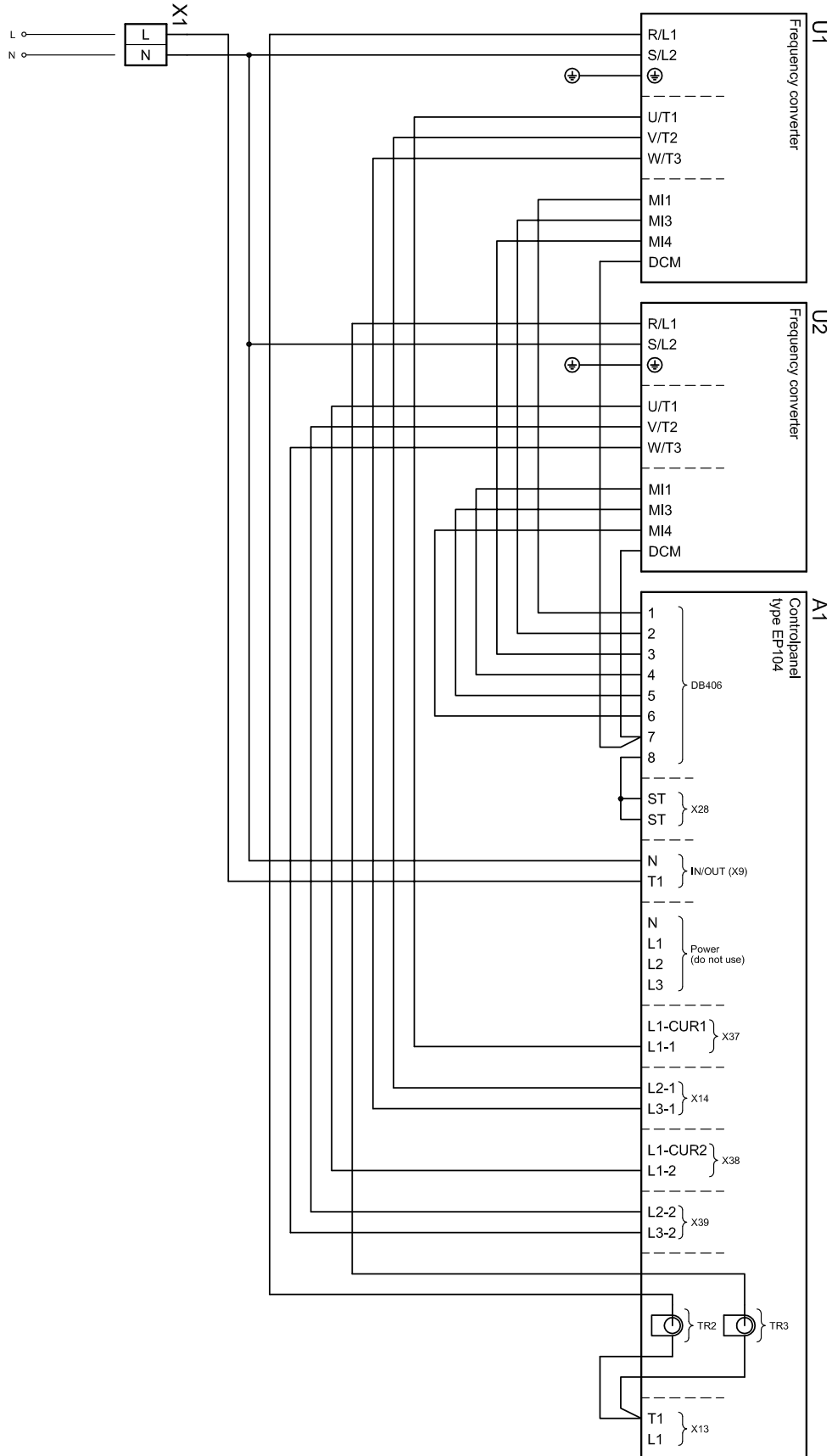
Ensure that all cables are disconnected from the terminals indicated in the diagram below. Also note the direction in which the cable is routed through the coil. If this is not correct, the frequency converter and the automatic control unit may be permanently damaged. After the modification described below, N and T1 will be an input and not an output.



- Connection diagram for 1 motor



- Connection diagram for two motors



## Installing the Delta VFD-EL frequency converter

- **Modification of the motor winder**

The following criteria must be met in order to use the DAAB motor winder with the frequency converter:

- The limit switch cams must be wider than normal.
- FAAC Nordic AB recommends using a motor with a speed of 2,800 rpm.

- **Programming the frequency converter**

In start mode F XX (XX = frequency) is displayed. Press the ENTER button to enter programming mode (press the button once for X-). Select the desired group and press ENTER again – (X-XX) is displayed. Select the desired channel and press ENTER again – (dX) is displayed. Set the desired value, press ENTER again, when the channel is displayed again press MODE until the display returns to F XX.

- **Channel settings in the frequency converter**

Channel no.	Description	Fixed value	Value to be adjusted
00-03	used to display the output frequency during operation	1	
01-00	used to set the maximum output frequency	70 Hz	
01-03	used to set the low frequency	7,5 Hz	
01-04	used to set the low frequency voltage	60 V	
01-05	used to set the start frequency	1,5 Hz	
01-06	used to set the start frequency voltage	40 V	
01-09	used to set the acceleration time		
01-10	Used to define the retardation time		
02-00	used to set the control method	0	
02-01	used to set the start method	1	
02-02	used to set the type of stop	1	
02-04	used to block reversing	1	
03-00	used to set the multifunction output	1	
03-08	used to set the internal cooling fan	2	
04-06	used to set the function of input MI4	2	
04-05	used to set the function of input MI3	1	
04-04	used to set the function of input MI1	0	
*	used to set the opening speed		
05-00	used to set braking in the opening movement		
05-01	used to set the closing speed		
05-02	used to set braking in the closing movement		
06-01	used to set the over-current protection	170	
06-06	used to set the electronic overload relay	2	
08-08	used to set the current limit for a speed increase	170	
08-15	used to set the number of start attempts before an error message is generated	0	

\* = This is set using the arrow keys on the display when the frequency converter is in F XX mode. This setting does not use a channel.

- Channel settings in the EP104 when using an encoder

When a frequency converter is used with the EP104 a load guard cannot be used. For this reason make the following parameter settings in the automatic control unit:

C201 = 0 - This parameter means that the lower motor protection limit is not tripped when a frequency converter is used.

C202 = 4 - This parameter specifies that a frequency converter is being used.

C230 = 0.00 - This parameter disables personal protection for motor 1.

C240 = 0.00 - This parameter disables personal protection for motor 2 (if two motors are being controlled).

Channels L114, L115, L124 and L125 specify how many degrees before the end position the motors are to go into low speed mode. These channels can be adjusted for optimal operation.

L114 = 45 - This parameter specifies how many degrees before the open position that the speed decrease of motor 1 is to start.

L115 = 45 - This parameter specifies how many degrees before the closed position that the speed decrease of motor 1 is to start.

L124 = 45 - This parameter specifies how many degrees before the open position that the speed decrease of motor 2 is to start.

L125 = 45 - This parameter specifies how many degrees before the closed position that the speed decrease of motor 2 is to start.

**NOTE! Motor protection (C252, C253, C262, C263) must be set to the maximum power consumption reading!**

- Channel settings in the EP104 when using mechanical limit switches

When a frequency converter is used with the EP104 a load guard cannot be used. For this reason make the following parameter settings in the automatic control unit:

C201 = 0 - This parameter means that the lower motor protection limit is not tripped when a frequency converter is used.

C202 = 4 - This parameter specifies that a frequency converter is being used.

C230 = 0.00 - This parameter disables personal protection for motor 1.

C240 = 0.00 - This parameter disables personal protection for motor 2 (if two motors are being controlled).

Channels C422, C423, C432 and C433 specify how many seconds after the limit position has been activated that the motor should run at low speed.

C422 = 1.50 - This parameter specifies a run-on time for the opening movement for motor 1.

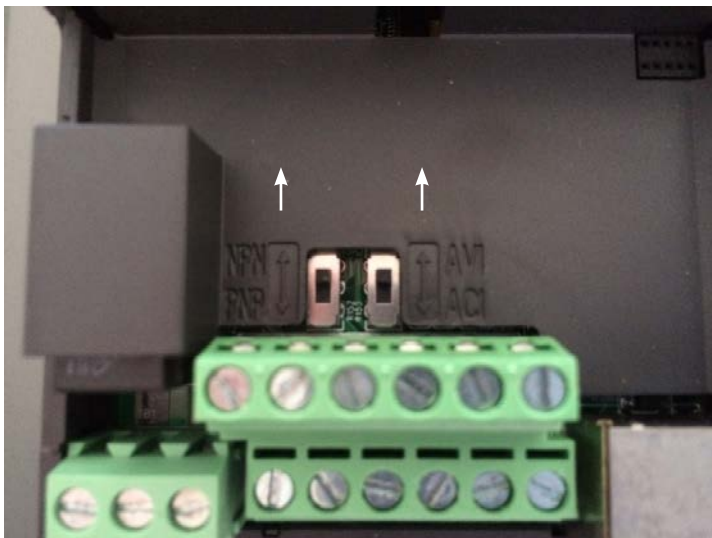
C423 = 1.50 - This parameter specifies a run-on time for the closing movement for motor 1.

C432 = 1.50 - This parameter specifies a run-on time for the opening movement for motor 2 (if two motors are being controlled).

C433 = 1.50 - This parameter specifies a run-on time for the closing movement for motor 2 (if two motors are being controlled).

**NOTE! Motor protection (C252, C253, C262, C263) must be set to the maximum power consumption reading!**

**Note that both switches above the terminal block must be in the upward position!**







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