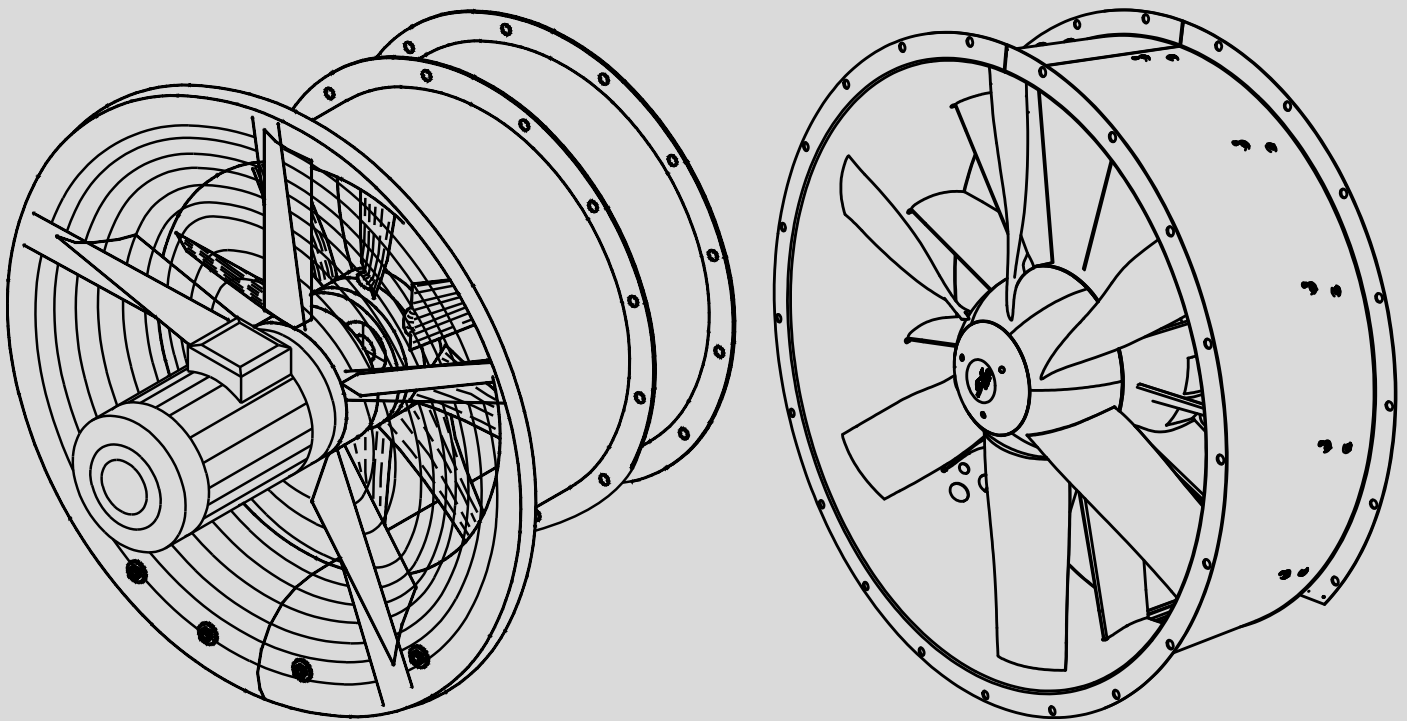


Building & Industry

**NOVENCO** 

SCHAKO Group



# Frequency converters

## Danfoss® FC 101 and FC 102

### NOVENCO configuration

### user guide

English  
Original version

926867-0

## Important

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The fans are designed for continuous operation. The following kinds of operation may cause fatigue break in the rotors and endanger people.

- Operation in stall area
- Operation with pulsating counter pressure – called pump mode
- Operation with exceedingly starts and stops

If in doubt, NOVENCO should be contacted to assess the suitability of the fans.

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## 1. General



The procedures and parameters in this guide serve for set up and configuration of NOVENCO NovAx™ and ZerAx® axial fans to work with Danfoss® FC 101 and FC 102 frequency converter drives and either permanent magnet (PM) or alternating current (AC) motors.

 Before set up can begin, the installation of the fans and frequency converters must be complete and approved by the responsible installer.  
 Wire specifications must for example comply with the quality prescribed in the documentation for the frequency converters.

Please read this complete guide, before set up.

The guide supplement the installation and maintenance guides for the NOVENCO NovAx™ ACL-ACN-ACW and ZerAx® AZL-AZN-AZW fans. See appendix "4. Reference documentation" and the motor documentation.

The procedures and methods in this guide must be followed to maintain the validity of the warranty.

Icons	Description
	Risk of damage to equipment
	Risk of injury or death

**Table 1.** Icons in guide

## 2. Setup with start-up wizard

Refer to the Danfoss documentation for information on how to operate the FC 101 and FC 102.


### Set up of frequency converter

1. Power up the frequency converter.
2. Choose the preferred language.
3. Launch the wizard.
4. Set the control fields.

Identify the motor type, size and NOVENCO item no. in section "3. Parameter settings" and complete the steps.


Refer to the motor and fan nameplates. If there are differences between the values on the nameplates and those in this guide, the values from the nameplates should be used.

5. **FC 101:** Optional step  
 Set the following parameters.

 Basis for the setup are the factory defaults of the frequency converters. Reset the converters to factory defaults, if any of the below conditions apply.

- Unsure of current settings
- Motor was changed
- Fan impeller was changed

Setting parameter 14-22 to 2 resets the frequency converter and all settings at the next power up. Re-enter the start-up wizard via the Quick Menu.

 If the Automatic Motor Adaption test (parameter 1-29) fails, run it again as a minimum test.

Parameters	Field names	Settings	Comments
4-41	Warning freq. high	No [Hz]	Same as parameter 4-14

**Table 2.** Common parameters on FC 101

6. Restart the frequency converter.  
 This enters normal operation and completes this procedure.

## 3. Parameter settings

### 3.1 Danfoss FC101 – 400 VAC PM motors

Parameters	Field names	Motor types				Comments
		Lafert 8p, 2.2 kW, 926524-0	Domel 10p, 2.2 kW, 926418-0	Lafert 8p, 3.0 kW, 926525-0	Lafert 8p, 3.0 kW, 926526-0	
0-03	Regional settings	0	0	0	0	International
0-06	Grid type	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	Set voltage level
1-10	Motor construction/ Motor type	1	1	1	1	PM, non-salient SPM
1-22	Motor voltage	400 V AC	400 V AC	400 V AC	400 V AC	Nominal value
1-24	Motor current	5.1 A	4.1 A	7 A	5.8 A	Full-load current
1-25	Motor nominal speed	3000 RPM	2800 RPM	3000 RPM	4500 RPM	
1-26	Motor construction rated torque	7 Nm	6.0 Nm	9.6 Nm	6.4 Nm	Do not calculate torque
1-30	Stator resistance (Rs)	1.62 Ω	1.41 Ω	0.98 Ω	0.72 Ω	
1-39	Motor poles	8 poles	10 poles	8 poles	8 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	91 V	95 V	91 V	65 V	
1-37	d-axis inductance (Ld)	16.9 mH	14.0 mH	10.82 mH	7.74 mH	
30-22	Locked rotor	0	0	0	0	0 = Off
30-23	Locked rotor detection time	0.1 s	0.1 s	0.1 s	0.1 s	
4-19	Max output freq.	200 Hz	400 Hz	300 Hz	400 Hz	
1-42	Motor cable length	[in meters]	[in meters]	[in meters]	[in meters]	
4-12	Motor speed low lim.	15 Hz	20 Hz	15 Hz	15 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or labels on fan casing
3-41	Ramp 1 ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1 ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
1-73	Flying start	1	1	1	1	1 = Enabled
6-19	Terminal 53 mode	1	1	1	1	1 = Voltage control signal
6-10	Terminal 53 low volt	0.07 V	0.07 V	0.07 V	0.07 V	
6-11	Terminal 53 high volt	10 V	10 V	10 V	10 V	
3-02	Minimum ref.	0	0	0	0	
3-03	Maximum ref.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
5-40	Function relay 1	No	No	No	No	Alarm relay
5-40	Function relay 2	No	No	No	No	Warning relay
1-29	Automatic motor adaptation (AMA)	1	1	1	1	1 = Enable AMA Optimises motor performance and exits wizard.
6-14	Terminal 53 low Ref. / feedb. value	0	0	0	0	
6-15	Terminal 53 high Ref. / feedb. value	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval
1-70	PM start mode	1	–	1	1	1 = Parked

**Table 3.** Parameter settings for Danfoss FC101 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Lafert 8p, 4.0 kW, 926527-0	Domel 10p, 4.1 kW, 926478-0	Domel 10p, 4.1 kW, 927275-0	Domel 10p, 4.7 kW, 926479-0	
0-03	Regional settings	0	0	0	0	International
0-06	Grid type	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	Set voltage level
1-10	Motor construction/ Motor type	1	1	1	1	PM, non-salient SPM
1-22	Motor voltage	400 V AC	400 V AC	400 V AC	400 V AC	Nominal value
1-24	Motor current	8.3 A	9.1 A	8.4 A	9.3 A	Full-load current
1-25	Motor nominal speed	4500 RPM	1980 RPM	2450 RPM	1600 RPM	
1-26	Motor construction rated torque	8.5 Nm	18.0 Nm	16.0 Nm	24 Nm	Do not calculate torque
1-30	Stator resistance (Rs)	0.42 Ω	0.68 Ω	0.65 Ω	0.32 Ω	
1-39	Motor poles	8 poles	10 poles	10 poles	10 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	65 V	144 V	138 V	187 V	
1-37	d-axis inductance (Ld)	5.15.0 mH	13.0 mH	13.0 mH	9.4 mH	
30-22	Locked rotor	0	0	0	0	0 = Off
30-23	Locked rotor detection time	0.1 s	0.1 s	0.1 s	0.1 s	
	Starting ramp up time			20.00 s		
	Ramp time			5.00 s		
4-19	Max output freq.	400 Hz	225 Hz	283.3 Hz	208 Hz	
1-42	Motor cable length	[In meters]	[In meters]	[in meters]	[In meters]	
4-12	Motor speed low lim.	15 Hz	20 Hz	20 Hz	20 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or labels on fan casing
3-41	Ramp 1 ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1 ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
1-73	Flying start	1	1	1	1	1 = Enabled
6-19	Terminal 53 mode	1	1	1	1	1 = Voltage control signal
6-10	Terminal 53 low volt	0.07 V	0.07 V	0.07 V	0.07 V	
6-11	Terminal 53 high volt	10 V	10 V	10 V	10 V	
3-02	Minimum ref.	0	0	0	0	
3-03	Maximum ref.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
5-40	Function relay 1	No	No	No	No	Alarm relay
5-40	Function relay 2	No	No	No	No	Warning relay
1-29	Automatic motor adap- tion (AMA)	1	1	1	1	1 = Enable AMA Optimises motor perfor- mance and exits wizard.
6-14	Terminal 53 low Ref. / feedb. value	0	0	0	0	
6-15	Terminal 53 high Ref. / feedb. value	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval
1-70	PM start mode	1	–	–	–	1 = Parked

**Table 4.** Parameter settings for Danfoss FC101 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Domel 20p, 4.9 kW, 928310-0	Lafert 8p, 5.5 kW, 926528-0	Domel 10p, 6.6 kW, 927116-0	Domel 10p, 6.9 kW, 927207-0	
0-03	Regional settings	0	0	0	0	International
0-06	Grid type	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	Set voltage level
1-10	Motor construction/ Motor type	1	1	1	1	PM, non-salient SPM
1-22	Motor voltage	400 V AC	400 V AC	400 V AC	400 V AC	Nominal value
1-24	Motor current	10.7 A	11.4 A	12.0 A	12.0 A	Full-load current
1-25	Motor nominal speed	1430 RPM	4500 RPM	1410 RPM	1730 RPM	
1-26	Motor construction rated torque	33 Nm	11.7 Nm	44 Nm	40 Nm	
1-30	Stator resistance (Rs)	0.63 $\Omega$	0.33 $\Omega$	0.17 $\Omega$	0.15 $\Omega$	
1-39	Motor poles	20 poles	8 poles	10 poles	10 poles	
1-40	Back EMF at 1000 RPM	224 V	66 V	218 V	156 V	
1-37	d-axis inductance (Ld)	7.1 mH	4.0 mH	7.5 mH	6.4 mH	
30-22	Locked rotor	0	0	0	0	0 = Off
30-23	Locked rotor detection time	0.1 s	0.1 s	0.1 s	0.1 s	
4-19	Max output freq.	286.7 Hz	400 Hz	175 Hz	216.7 Hz	
1-42	Motor cable length	[In meters]	[in meters]	[in meters]	[in meters]	
4-12	Motor speed low lim.	20 Hz	15 Hz	20 Hz	20 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or labels on fan casing
3-41	Ramp 1 ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1 ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
1-73	Flying start	1	1	1	1	1 = Enabled
6-19	Terminal 53 mode	1	1	1	1	1 = Voltage control signal
6-10	Terminal 53 low volt	0.07 V	0.07 V	0.07 V	0.07 V	
6-11	Terminal 53 high volt	10 V	10 V	10 V	10 V	
3-02	Minimum ref.	0	0	0	0	
3-03	Maximum ref.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
5-40	Function relay 1	No	No	No	No	Alarm relay
5-40	Function relay 2	No	No	No	No	Warning relay
1-29	Automatic motor adap- tion (AMA)	1	1	1	1	1 = Enable AMA Optimises motor perfor- mance and exits wizard.
6-14	Terminal 53 low Ref. / feedb. value	0	0	0	0	
6-15	Terminal 53 high Ref. / feedb. value	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 5.** Parameter settings for Danfoss FC101 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Domel 10p, 7.2 kW, 927536-0	Domel 10p, 7.2 kW, 926480-0	Lafert 8p, 7.5 kW, 926529-0	Domel 10p, 7.9 kW, 926481-0	
0-03	Regional settings	0	0	0	0	International
0-06	Grid type	400-480 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	Set voltage level
1-10	Motor construction/ Motor type	1	1	1	1	PM, non-salient SPM
1-22	Motor voltage	400 V AC	400 V AC	400 V AC	400 V AC	Nominal value
1-24	Motor current	14.6 A	14.6 A	15.1 A	18.6 A	Full-load current
1-25	Motor nominal speed	1410 RPM	1410 RPM	4500 RPM	1730 RPM	
1-26	Motor construction rated torque	44.0 Nm	40.0 Nm	15.9 Nm	40.0 Nm	
1-30	Stator resistance (Rs)	0.17 $\Omega$	0.17 $\Omega$	0.33 $\Omega$	0.15 $\Omega$	
1-39	Motor poles	10 poles	10 poles	8 poles	10 poles	
1-40	Back EMF at 1000 RPM	218 V	192 V	69 V	156 V	
1-37	d-axis inductance (Ld)	7.5 mH	10.0 mH	3.2 mH	6.4 mH	
30-22	Locked rotor	0	0	0	0	0 = Off
30-23	Locked rotor detection time	0.1 s	0.1 s	0.1 s	0.1 s	
4-19	Max output freq.	175.0 Hz	166.7 Hz	400 Hz	216 Hz	
1-42	Motor cable length	[In meters]	[In meters]	[in meters]	[in meters]	
4-12	Motor speed low lim.	20 Hz	20 Hz	15 Hz	20 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or labels on fan casing
3-41	Ramp 1 ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1 ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
1-73	Flying start	1	1	1	1	1 = Enabled
6-19	Terminal 53 mode	1	1	1	1	1 = Voltage control signal
6-10	Terminal 53 low volt	0.07 V	0.07 V	0.07 V	0.07 V	
6-11	Terminal 53 high volt	10 V	10 V	10 V	10 V	
3-02	Minimum ref.	0	0	0	0	
3-03	Maximum ref.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
5-40	Function relay 1	No	No	No	No	Alarm relay
5-40	Function relay 2	No	No	No	No	Warning relay
1-29	Automatic motor adap- tion (AMA)	1	1	1	1	1 = Enable AMA Optimises motor perfor- mance and exits wizard.
6-14	Terminal 53 low Ref. / feedb. value	0	0	0	0	
6-15	Terminal 53 high Ref. / feedb. value	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 6.** Parameter settings for Danfoss FC101 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Domel 10p, 7.9 kW, 927200-0	Domel 12p, 8.3 kW, 927125-0	Domel 12p, 11.3 kW, 927526-0	Domel 12p, 11.7 kW, 926984-0	
0-03	Regional settings	0	0	0	0	International
0-06	Grid type	400-480 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	Set voltage level
1-10	Motor construction/ Motor type	1	1	1	1	PM, non-salient SPM
1-22	Motor voltage	400 V AC	400 V AC	400 V AC	400 V AC	Nominal value
1-24	Motor current	16.0 A	15.4 A	22.4 A	21.7 A	Full-load current
1-25	Motor nominal speed	1730 RPM	620 RPM	770 RPM	2600 RPM	
1-26	Motor construction rated torque	40.0 Nm	120.0 Nm	140 Nm	40 Nm	
1-30	Stator resistance (Rs)	0.15 $\Omega$	0.66 $\Omega$	0.50 $\Omega$	0.22 $\Omega$	
1-39	Motor poles	10 poles	12 poles	12 poles	12 poles	
1-40	Back EMF at 1000 RPM	183 V	518 V	416 V	123 V	
1-37	d-axis inductance (Ld)	5.8 mH	12.0 mH	8.3 mH	2.7 mH	
30-22	Locked rotor	0	0	0	0	0 = Off
30-23	Locked rotor detection time	0.1 s	0.1 s	0.1 s	0.1 s	
4-19	Max output freq.	216 Hz	83 Hz	92 Hz	310 Hz	
1-42	Motor cable length	[in meters]	[in meters]	[in meters]	[in meters]	
4-12	Motor speed low lim.	20 Hz	10 Hz (= 100 RPM)	10 Hz	25 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or labels on fan casing
3-41	Ramp 1 ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1 ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
1-73	Flying start	1	1	1	1	1 = Enabled
6-19	Terminal 53 mode	1	1	1	1	1 = Voltage control signal
6-10	Terminal 53 low volt	0.07 V	0.07 V	0.07 V	0.07 V	
6-11	Terminal 53 high volt	10 V	10 V	10 V	10 V	
3-02	Minimum ref.	0	0	0	0	
3-03	Maximum ref.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
5-40	Function relay 1	No	No	No	No	Alarm relay
5-40	Function relay 2	No	No	No	No	Warning relay
1-29	Automatic motor adap- tion (AMA)	1	1	1	1	1 = Enable AMA Optimises motor perfor- mance and exits wizard.
6-14	Terminal 53 low Ref. / feedb. value	0	0	0	0	
6-15	Terminal 53 high Ref. / feedb. value	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 7.** Parameter settings for Danfoss FC101 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Domel 12p, 12.1 kW, 926482-0	Domel 12p, 13.2 kW, 926986-0	Domel 12p, 13.4 kW, 927523-0	Domel 12p, 13.9 kW, 926987-0	
0-03	Regional settings	0	0	0	0	International
0-06	Grid type	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	Set voltage level
1-10	Motor construction/ Motor type	1	1	1	1	PM, non-salient SPM
1-22	Motor voltage	400 V AC	400 V AC	400 V AC	400 V AC	Nominal value
1-24	Motor current	23.0 A	23.2 A	26.6 A	27.5 A	Full-load current
1-25	Motor nominal speed	1600 RPM	1860 RPM	800 RPM	1660 RPM	
1-26	Motor construction rated torque	66 Nm	60 Nm	160 Nm	80 Nm	
1-30	Stator resistance (Rs)	0.26 $\Omega$	0.24 $\Omega$	0.35 $\Omega$	0.17 $\Omega$	
1-39	Motor poles	12 poles	12 poles	12 poles	12 poles	
1-40	Back EMF at 1000 RPM	197 V	172 V	400 V	193 V	
1-37	d-axis inductance (Ld)	3.77 mH	3.2 mH	6.4 mH	2.8 mH	
30-22	Locked rotor	0	0	0	0	0 = Off
30-23	Locked rotor detection time	0.1 s	0.1 s	0.1 s	0.1 s	
4-19	Max output freq.	210 Hz	230 Hz	96 Hz	220 Hz	
1-42	Motor cable length	[in meters]	[in meters]	[in meters]	[in meters]	
4-12	Motor speed low lim.	25 Hz	25 Hz	10 Hz (= 100 RPM)	25 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or labels on fan casing
3-41	Ramp 1 ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1 ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
1-73	Flying start	1	1	1	1	1 = Enabled
6-19	Terminal 53 mode	1	1	1	1	1 = Voltage control signal
6-10	Terminal 53 low volt	0.07 V	0.07 V	0.07 V	0.07 V	
6-11	Terminal 53 high volt	10 V	10 V	10 V	10 V	
3-02	Minimum ref.	0	0	0	0	
3-03	Maximum ref.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
5-40	Function relay 1	No	No	No	No	Alarm relay
5-40	Function relay 2	No	No	No	No	Warning relay
1-29	Automatic motor adap- tion (AMA)	1	1	1	1	1 = Enable AMA Optimises motor perfor- mance and exits wizard.
6-14	Terminal 53 low Ref. / feedb. value	0	0	0	0	
6-15	Terminal 53 high Ref. / feedb. value	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 8.** Parameter settings for Danfoss FC101 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Domel 12p, 14.7 kW, 927525-0	Domel 12p, 18.8 kW, 926985-0	Domel 12p, 19.3 kW, 926988-0	Domel 12p, 21.7 kW, 926989-0	
0-03	Regional settings	0	0	0	0	International
0-06	Grid type	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	Set voltage level
1-10	Motor construction/ Motor type	1	1	1	1	PM, non-salient SPM
1-22	Motor voltage	400 V AC	400 V AC	400 V AC	400 V AC	Nominal value
1-24	Motor current	29.2 A	35.0 A	36.0 A	42.9 A	Full-load current
1-25	Motor nominal speed	1170 RPM	2790 RPM	2170 RPM	2070 RPM	
1-26	Motor construction rated torque	120 Nm	60 Nm	80 Nm	100 Nm	
1-30	Stator resistance (Rs)	0.23 $\Omega$	0.1 $\Omega$	0.11 $\Omega$	0.09 $\Omega$	
1-39	Motor poles	12 poles	12 poles	12 poles	12 poles	
1-40	Back EMF at 1000 RPM	273 V	115 V	148 V	155 V	
1-37	d-axis inductance (Ld)	4.0 mH	1.3 mH	1.6 mH	1.51 mH	
30-22	Locked rotor	0	0	0	0	0 = Off
30-23	Locked rotor detection time	0.1 s	0.1 s	0.1 s	0.1 s	
4-19	Max output freq.	140 Hz	350 Hz	300 Hz	270 Hz	
1-42	Motor cable length	[in meters]	[in meters]	[in meters]	[in meters]	
4-12	Motor speed low lim.	25 Hz	25 Hz	25 Hz	25 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or labels on fan casing
3-41	Ramp 1 ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1 ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
1-73	Flying start	1	1	1	1	1 = Enabled
6-19	Terminal 53 mode	1	1	1	1	1 = Voltage control signal
6-10	Terminal 53 low volt	0.07 V	0.07 V	0.07 V	0.07 V	
6-11	Terminal 53 high volt	10 V	10 V	10 V	10 V	
3-02	Minimum ref.	0	0	0	0	
3-03	Maximum ref.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
5-40	Function relay 1	No	No	No	No	Alarm relay
5-40	Function relay 2	No	No	No	No	Warning relay
1-29	Automatic motor adap- tion (AMA)	1	1	1	1	1 = Enable AMA Optimises motor perfor- mance and exits wizard.
6-14	Terminal 53 low Ref. / feedb. value	0	0	0	0	
6-15	Terminal 53 high Ref. / feedb. value	No [Hz]	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 9.** Parameter settings for Danfoss FC101 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types			Comments
		Domel 12p, 31.0 kW, 926990-0	Domel 12p, 38.3 kW, 927684-0	Domel 12p, 44.7 kW, 927524-0	
0-03	Regional settings	0	0	0	International
0-06	Grid type	380-440 V / 50 Hz	380-440 V / 50 Hz	380-440 V / 50 Hz	Set voltage level
1-10	Motor construction/ Motor type	1	1	1	PM, non-salient SPM
1-22	Motor voltage	400 V AC	400 V AC	400 V AC	Nominal value
1-24	Motor current	54.0 A	76.0 A	89.0 A	Full-load current
1-25	Motor nominal speed	1990 RPM	3050 RPM	2670 RPM	
1-26	Motor construction rated torque	120 Nm	120 Nm	160 Nm	
1-30	Stator resistance (Rs)	0.07 $\Omega$	0.035 $\Omega$	0.035 $\Omega$	
1-39	Motor poles	12 poles	12 poles	12 poles	
1-40	Back EMF at 1000 RPM	161 V	105 V	120 V	
1-37	d-axis inductance (Ld)	1.2 mH	0.6 mH	0.6 mH	
30-22	Locked rotor	0	0	0	0 = Off
30-23	Locked rotor detection time	0.1 s	0.1 s	0.1 s	
4-19	Max output freq.	250 Hz	366 Hz	320 Hz	
1-42	Motor cable length	[in meters]	[in meters]	[in meters]	
4-12	Motor speed low lim.	25 Hz	25 Hz	25 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or labels on fan casing
3-41	Ramp 1 ramp up time	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1 ramp down time	30 s	30 s	30 s	Avoid too fast ramp
1-73	Flying start	1	1	1	1 = Enabled
6-19	Terminal 53 mode	1	1	1	1 = Voltage control signal
6-10	Terminal 53 low volt	0.07 V	0.07 V	0.07 V	
6-11	Terminal 53 high volt	10 V	10 V	10 V	
3-02	Minimum ref.	0	0	0	
3-03	Maximum ref.	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
5-40	Function relay 1	No	No	No	Alarm relay
5-40	Function relay 2	No	No	No	Warning relay
1-29	Automatic motor adap- tion (AMA)	1	1	1	1 = Enable AMA Optimises motor perfor- mance and exits wizard.
6-14	Terminal 53 low Ref. / feedb. value	0	0	0	
6-15	Terminal 53 high Ref. / feedb. value	No [Hz]	No [Hz]	No [Hz]	Same as parameter 4-14
14-20	Reset mode	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	Reset time interval

**Table 10.**Parameter settings for Danfoss FC101 converters with Domel or Lafert PM motors

### 3.2 Danfoss FC101 – AC motors

Parameters	Field names	ABB, WEG, Nidec, Hoyer, Regal all item no.	Comments
0-03	Regional settings	0	International
0-06	Grid type	380-440 V / 50 Hz	Set voltage level
1-10	Motor construction/Motor type	0	Asynchronous
1-22	Motor power	[in kW]	See specifications from AirBox or labels on fan casing
1-24	Motor voltage	400 V	Motor voltages
1-25	Motor frequency	50 Hz	
1-26	Motor current	[in Ampere]	See specifications from AirBox or labels on fan casing
1-30	Motor nominal speed	[in RPM]	See specifications from AirBox or labels on fan casing
1-42	Motor cable length	[in meters]	
4-12	Motor speed low lim.	5 Hz	
4-14	Motor speed high lim.	No [Hz]	See specifications from AirBox or labels on fan casing
3-41	Ramp 1 ramp up time	30 s	Avoid too fast ramp
3-42	Ramp 1 ramp down time	30 s	Avoid too fast ramp
1-73	Flying start	1	1 = Enabled
6-19	Terminal 53 mode	1	1 = Voltage control signal
6-10	Terminal 53 low volt	0.07 V	
6-11	Terminal 53 high volt	10 V	
3-02	Minimum ref.	0	
3-03	Maximum ref.	No [Hz]	Same as parameter 4-14
5-40	Function relay 1	No	Alarm relay
5-40	Function relay 2	No	Warning relay
1-29	Automatic motor adaption (AMA)	1	1 = Enable AMA Optimises motor performance and exits wizard.
6-14	Terminal 53 low Ref. / feedb. value	0	
6-15	Terminal 53 high Ref. / feedb. value	No [Hz]	Same as parameter 4-14
14-20	Reset mode	3	Automatic reset x 3
14-21	Automatic restart time	10 s	Reset time interval

**Table 11.**Parameter settings for Danfoss FC101 converters with AC motors

### 3.3 Danfoss FC102 – 400 VAC PM motors

Parameters	Field names	Motor types				Comments
		Domel 10p, 2.2 kW, 926418-0	Lafert 8p, 3.0 kW, 926526-0	Lafert 8p, 4.0 kW, 926527-0	Domel 10p, 4.1 kW, 926478-0	
0-01	Language	English	English	English	English	Set Language to regional
1-10	Motor type	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	
1-90	Thermal motor protection	No	No	No	No	
1-24	Motor current	4.1 A	5.8 A	8.3 A	9.1 A	Full-load current
1-25	Motor nominal speed	2800 RPM	4500 RPM	4500 RPM	1980 RPM	
1-26	Motor rated torque	6.0 Nm	6.4 Nm	8.5 Nm	18.0 Nm	Do not calculate torque
1-39	Motor poles	10 poles	8 poles	8 poles	10 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	95 V	292 V	292 V		Do not calculate Back EMF
3-02	Minimum reference	250 RPM	250 RPM	250 RPM	250 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
	Select your application	Fan	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	400 Hz	300 Hz	400 Hz	225 Hz	
4-12	Motor speed low lim.	20 Hz	15 Hz	15 Hz	20 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 12.**Parameter settings for Danfoss FC102 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Domel 10p, 4.1 kW, 927275-0	Domel 10p, 4.7 kW, 926479-0	Domel 20p, 4.9 kW, 928310-0	Lafert 8p, 5.5 kW, 926528-0	
0-01	Language	English	English	English	English	Set Language to regional
1-10	Motor type	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	
1-90	Thermal motor protection	No	No	No	No	
1-24	Motor current	8.4 A	9.3 A	10.7 A	11.4 A	Full-load current
1-25	Motor nominal speed	2450 RPM	1600 RPM	1430 RPM	4500 RPM	
1-26	Motor rated torque	16.0 Nm	24.0 Nm	33.0 Nm	35.0 Nm	Do not calculate torque
1-39	Motor poles	10 poles	10 poles	20 poles	8 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	138 V	187 V	224 V	297 V	Do not calculate Back EMF
3-02	Minimum reference	250 RPM	250 RPM	250 RPM	250 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
	Select your application	Fan	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
	Starting ramp up time			20.00 s		
	Ramp time			5.00 s		
4-19	Max output freq.	283.3 Hz	208 Hz	286.7 Hz	400 Hz	
4-12	Motor speed low lim.	20 Hz	20 Hz	25 Hz	15 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 13.**Parameter settings for Danfoss FC102 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Domel 10p, 6.6 kW, 927116-0	Domel 10p, 6.9 kW, 927207-0	Domel 10p, 7.2 kW, 926480-0	Domel 10p, 7.2 kW, 927536-0	
0-01	Language	English	English	English	English	Set Language to regional
1-10	Motor type	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	
1-90	Thermal motor protection	No	No	No	No	
1-24	Motor current	12.0 A	12.0 A	14.6 A	14.6 A	Full-load current
1-25	Motor nominal speed	1410 RPM	1730 RPM	1410 RPM	1410 RPM	
1-26	Motor rated torque	44.0 Nm	40.0 Nm	40.0 Nm	44.0 Nm	Do not calculate torque
1-39	Motor poles	10 poles	10 poles	10 poles	10 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	183 V	156 V	218 V	192 V	Do not calculate Back EMF
3-02	Minimum reference	250 RPM	250 RPM	250 RPM	250 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
	Select your application	Fan	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	175 Hz	216.7 Hz	166.7 Hz	175 Hz	
4-12	Motor speed low lim.	20 Hz	20 Hz	20 Hz	20 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 14.**Parameter settings for Danfoss FC102 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Lafert 8p, 7.5 kW, 926529-0	Domel 10p, 7.9 kW, 926481-0	Domel 10p, 7.9 kW, 927200-0	Domel 12p, 8.6 kW, 927125-0	
0-01	Language	English	English	English	English	Set Language to regional
1-10	Motor type	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	
1-90	Thermal motor protection	No	No	No	No	
1-24	Motor current	15.1 A	18.6 A	16.0 A	15.4 A	Full-load current
1-25	Motor nominal speed	4500 RPM	1730 RPM	1730 RPM	625 RPM	
1-26	Motor rated torque	15.9 Nm	40.0 Nm	40.0 Nm	120.0 Nm	Do not calculate torque
1-39	Motor poles	8 poles	10 poles	10 poles	12 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	311 V	183 V	156 V	518 V	Do not calculate Back EMF
3-02	Minimum reference	250 RPM	250 RPM	250 RPM	250 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
	Select your application	Fan	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	400 Hz	216 Hz	216 Hz	83 Hz	
4-12	Motor speed low lim.	15 Hz	20 Hz	20 Hz	10 Hz [= 100 RPM]	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 15.**Parameter settings for Danfoss FC102 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Domel 12p, 11.3 kW, 927526-0	Domel 12p, 11.7 kW, 926984-0	Domel 12p, 12.1 kW, 926482-0	Domel 12p, 13.2 kW, 926986-0	
0-01	Language	English	English	English	English	Set Language to regional
1-10	Motor type	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	
1-90	Thermal motor protection	No	No	No	No	
1-24	Motor current	22.4 A	21.7 A	23.0 A	23.2 A	Full-load current
1-25	Motor nominal speed	770 RPM	2600 RPM	1600 RPM	1860 RPM	
1-26	Motor rated torque	140.0 Nm	40.0 Nm	66.0 Nm	60 Nm	Do not calculate torque
1-39	Motor poles	12 poles	12 poles	12 poles	12 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM		123 V	197 V	172 V	Do not calculate Back EMF
3-02	Minimum reference	250 RPM	250 RPM	250 RPM	250 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
	Select your application	Fan	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	92 Hz	310 Hz	210 Hz	230 Hz	
4-12	Motor speed low lim.	25 Hz	25 Hz	25 Hz	25 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 16.**Parameter settings for Danfoss FC102 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Domel 12p, 13.4 kW, 927523-0	Domel 12p, 13.9 kW, 926987-0	Domel 12p, 18.8 kW, 926985-0	Domel 12p, 19.3 kW, 926988-0	
0-01	Language	English	English	English	English	Set Language to regional
1-10	Motor type	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	
1-90	Thermal motor protection	No	No	No	No	
1-24	Motor current	26.6 A	27.5 A	35.0 A	36.0 A	Full-load current
1-25	Motor nominal speed	800 RPM	1660 RPM	2790 RPM	2170 RPM	
1-26	Motor rated torque	160.0 Nm	80.0 Nm	60.0 Nm	80.0 Nm	Do not calculate torque
1-39	Motor poles	12 poles	12 poles	12 poles	12 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM		193 V	115 V	148 V	Do not calculate Back EMF
3-02	Minimum reference	250 RPM	250 RPM	250 RPM	250 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
	Select your application	Fan	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	96 Hz	220 Hz	279 Hz	300 Hz	
4-12	Motor speed low lim.	10 Hz [= 100 RPM]	25 Hz	25 Hz	25 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 17.**Parameter settings for Danfoss FC102 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Domel 12p, 21.7 kW, 926989-0	Domel 12p, 31.0 kW, 926990-0	Domel 12p, 38.3 kW, 927684-0	Domel 12p, 44.7 kW, 927524-0	
0-01	Language	English	English	English	English	Set Language to regional
1-10	Motor type	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	PM, Non-salient SPM	
1-90	Thermal motor protection	No	No	No	No	
1-24	Motor current	42.9 A	54.0 A	76.0 A	89.0 A	Full-load current
1-25	Motor nominal speed	2070 RPM	1990 RPM	3050 RPM	2670 RPM	
1-26	Motor rated torque	100.0 Nm	120.0 Nm	120.0 Nm	160.0 Nm	Do not calculate torque
1-39	Motor poles	12 poles	12 poles	12 poles	12 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	155 V	161 V			Do not calculate Back EMF
3-02	Minimum reference	250 RPM	250 RPM	250 RPM	250 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
	Select your application	Fan	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	270 Hz	250 Hz	366 Hz	300 Hz	
4-12	Motor speed low lim.	25 Hz	25 Hz	25 Hz	25 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 18.**Parameter settings for Danfoss FC102 converters with Domel or Lafert PM motors

### 3.4 Danfoss FC102 – Nidec PM motors

Parameters	Field names	Motor types				Comments
		Nidec 4p, 11.0 kW, 927858-0	Nidec 4p, 15.0 kW, 927857-0	Nidec 4p, 18.5 kW, 927859-0	Nidec 4p, 18.5 kW, 927869-0	
0-01	Language	English	English	English	English	Set Language to regional
1-10	Motor type	PMaSynRM	PMaSynRM	PMaSynRM	PMaSynRM	
1-90	Thermal motor protection	No	No	No	No	
1-23	Motor frequency	50 Hz	50 Hz	50 Hz	50 Hz	
1-24	Motor current	21.0 A	28.0 A	36.0 A	36.0 A	Full-load current
1-25	Motor nominal speed	1500 RPM	1500 RPM	1500 RPM	1500 RPM	
1-26	Motor rated torque	70.0 Nm	96.0 Nm	118.0 Nm	118.0 Nm	Do not calculate torque
1-39	Motor poles	4 poles	4 poles	4 poles	4 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	72 V	79 V	73 V	78.7 V	Do not calculate Back EMF
	PM start mode	0	0	0	0	0 = Off
	Compressor start max. speed [RPM]				0	
3-02	Minimum reference	300 RPM	300 RPM	300 RPM	300 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
	Starting ramp up time					
	Ramp time					
	Select your application	Fan	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	60 Hz	60 Hz	60 Hz	60 Hz	
4-12	Motor speed low lim.	10 Hz	10 Hz	10 Hz	10 Hz	Matches 300 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 19.**Parameter settings for Danfoss FC102 converters with Nidec PM motors

Parameters	Field names	Motor types				Comments
		Nidec 4p, 22.0 kW, 927860-0	Nidec 4p, 30.0 kW, 927861-0	Nidec 4p, 32.0 kW, 927868-0	Nidec 4p, 35.0 kW, 927872-0	
0-01	Language	English	English	English	English	Set Language to regional
1-10	Motor type	PMSynRM	PMSynRM	PMSynRM	PMSynRM	
1-90	Thermal motor protection	No	No	No	No	
1-23	Motor frequency	50 Hz	50 Hz	100 Hz	50 Hz	
1-24	Motor current	42.0 A	57.0 A	61.0 A	69.0 A	Full-load current
1-25	Motor nominal speed	1500 RPM	1500 RPM	3000 RPM	1500 RPM	
1-26	Motor rated torque	140.0 Nm	191.0 Nm	61.0 Nm	223.0 Nm	Do not calculate torque
1-39	Motor poles	4 poles	4 poles	4 poles	4 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	72 V	72 V	36 V	72 V	Do not calculate Back EMF
	PM start mode	0	0	0	0	0 = Off
	Compressor start max. speed [RPM]				0	
3-02	Minimum reference	300 RPM	300 RPM	300 RPM	300 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
	Starting ramp up time				30 s	
	Ramp time				2 s	
	Select your application	Fan	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	60 Hz	60 Hz	120 Hz	60 Hz	
4-12	Motor speed low lim.	10 Hz	10 Hz	10 Hz	10 Hz	Matches 300 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 20.**Parameter settings for Danfoss FC102 converters with Nidec PM motors

Parameters	Field names	Motor types				Comments
		Nidec 4p, 37.0 kW, 927862-0	Nidec 4p, 37.0 kW, 927870-0	Nidec 4p, 41.0 kW, 927874-0	Nidec 4p, 45.0 kW, 927863-0	
0-01	Language	English	English	English	English	Set Language to regional
1-10	Motor type	PMSynRM	PMSynRM	PMSynRM	PMSynRM	
1-90	Thermal motor protection	No	No	No	No	
1-23	Motor frequency	50 Hz	100 Hz	50 Hz	50 Hz	
1-24	Motor current	70.0 A	70.0 A	81.0 A	82.0 A	Full-load current
1-25	Motor nominal speed	1500 RPM	3000 RPM	1500 RPM	1500 RPM	
1-26	Motor rated torque	236.0 Nm	118.0 Nm	261.0 Nm	287.0 Nm	Do not calculate torque
1-39	Motor poles	4 poles	4 poles	4 poles	4 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	72 V	39 V	66 V	77 V	Do not calculate Back EMF
	PM start mode	0	0	0	0	0 = Off
	Compressor start max. speed [RPM]					
3-02	Minimum reference	300 RPM	300 RPM	300 RPM	300 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
	Starting ramp up time					
	Ramp time					
	Select your application	Fan	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	60 Hz	120 Hz	60 Hz	60 Hz	
4-12	Motor speed low lim.	10 Hz	10 Hz	10 Hz	10 Hz	Matches 300 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 21.**Parameter settings for Danfoss FC102 converters with Nidec PM motors

Parameters	Field names	Motor types				Comments
		Nidec 4p, 55.0 kW, 927864-0	Nidec 4p, 64.0 kW, 927871-0	Nidec 4p, 75.0 kW, 927865-0	Nidec 4p, 75.0 kW, 927873-0	
0-01	Language	English	English	English	English	Set Language to regional
1-10	Motor type	PMSynRM	PMSynRM	PMSynRM	PMSynRM	
1-90	Thermal motor protection	No	No	No	No	
1-23	Motor frequency	50 Hz	100 Hz	50 Hz	100 Hz	
1-24	Motor current	99.0 A	126.0 A	134.0 A	148.0 A	Full-load current
1-25	Motor nominal speed	1500 RPM	3000 RPM	1500 RPM	3000 RPM	
1-26	Motor rated torque	350.0 Nm	204.0 Nm	478.0 Nm	239.0 Nm	Do not calculate torque
1-39	Motor poles	4 poles	4 poles	4 poles	4 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	77 V	33 V	82 V	33 V	Do not calculate Back EMF
	PM start mode	0	0	0	0	0 = Off
	Compressor start max. speed [RPM]	0				
3-02	Minimum reference	300 RPM	300 RPM	300 RPM	300 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	30 s	30 s	Avoid too fast ramp
	Starting ramp up time	30 s				
	Ramp time	2 s				
	Select your application	Fan	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	60 Hz	120 Hz	60 Hz	120 Hz	
4-12	Motor speed low lim.	10 Hz	10 Hz	10 Hz	10 Hz	Matches 300 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

**Table 22.**Parameter settings for Danfoss FC102 converters with Nidec PM motors

Parameters	Field names	Motor types				Comments
		Nidec 4p, 90.0 kW, 927866-0	Nidec 4p, 94.0 kW, 927876-0	Nidec 4p, 117.0 kW, 927878-0	Nidec 4p, 172.0 kW, 927875-0	
0-01	Language	English	English	English	English	Set Language to regional
1-10	Motor type	PMSynRM	PMSynRM	PMSynRM	PMSynRM	
1-90	Thermal motor protection	No	No	No	No	
1-23	Motor frequency	50 Hz	50 Hz	50 Hz	100 Hz	
1-24	Motor current	163.0 A	183.0 A	218.0 A	327.0 A	Full-load current
1-25	Motor nominal speed	1500 RPM	1500 RPM	1500 RPM	3000 RPM	
1-26	Motor rated torque	573.0 Nm	598.0 Nm	745.0 Nm	548.0 Nm	Do not calculate torque
1-39	Motor poles	4 poles	4 poles	4 poles	4 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	80 V	67 V	70 V	36 V	Do not calculate Back EMF
	PM start mode	0	0	0	0	0 = Off
	Compressor start max. speed [RPM]					
3-02	Minimum reference	300 RPM	300 RPM	300 RPM	300 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	50 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	50 s	30 s	Avoid too fast ramp
	Starting ramp up time	15 s	15 s	15 s	15 s	
	Ramp time	2 s	2 s	2 s	2 s	
	Select your application	Fan	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	60 Hz	60 Hz	60 Hz	120 Hz	
4-12	Motor speed low lim.	10 Hz	10 Hz	10 Hz	10 Hz	Matches 300 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	10 s	Reset time interval

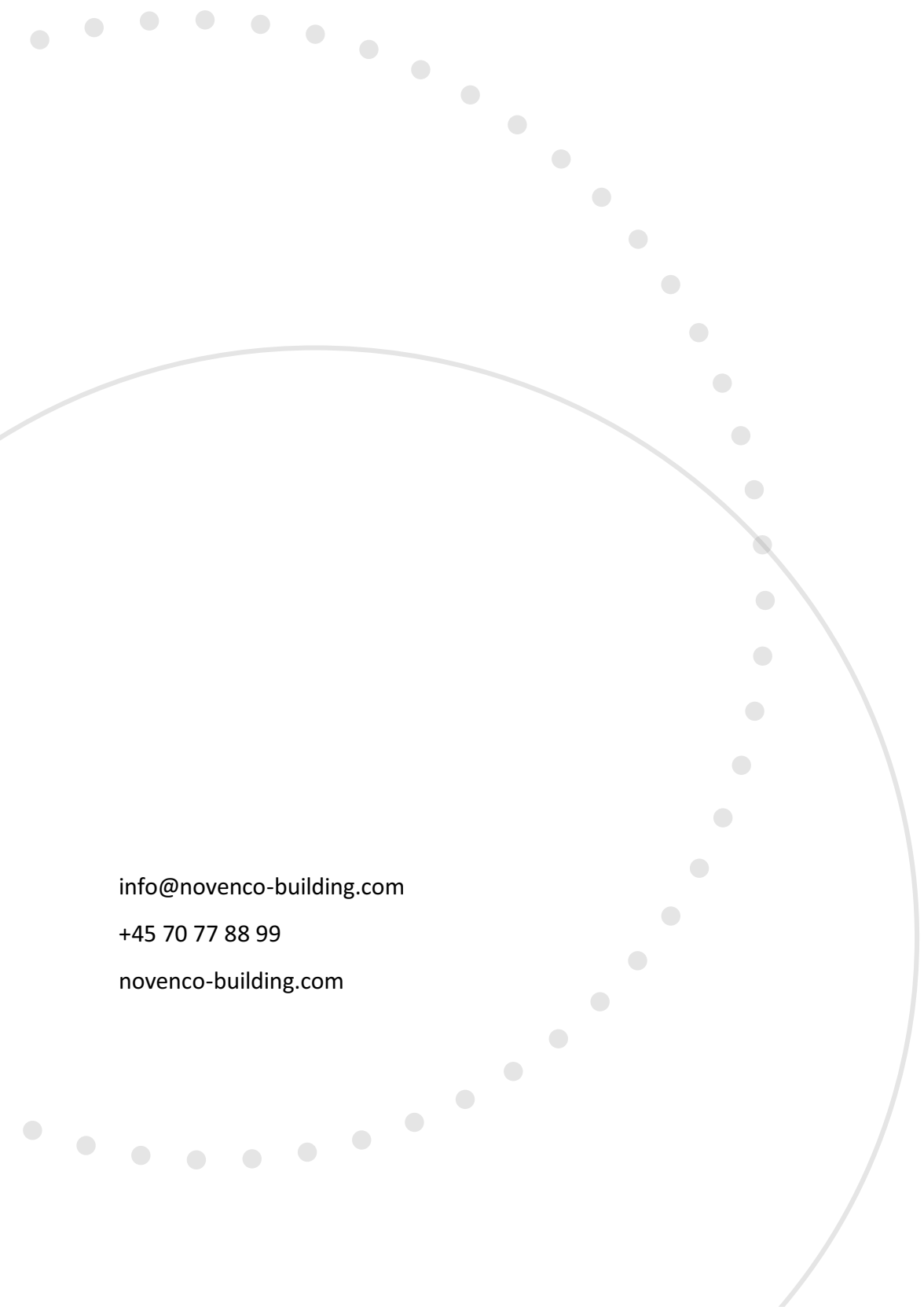
**Table 23.**Parameter settings for Danfoss FC102 converters with Nidec PM motors

Parameters	Field names	Motor types			Comments
		Nidec 4p, 206.0 kW, 927877-0	Nidec 4p, 220.0 kW, 927879-0	Nidec 4p, 315.0 kW, 927880-0	
0-01	Language	English	English	English	Set Language to regional
1-10	Motor type	PMSynRM	PMSynRM	PMSynRM	
1-90	Thermal motor protection	No	No	No	
1-23	Motor frequency	100 Hz	50 Hz	100 Hz	
1-24	Motor current	382.0 A	403.0 A	643.0 A	Full-load current
1-25	Motor nominal speed	3000 RPM	1500 RPM	3000 RPM	
1-26	Motor rated torque	656.0 Nm	1401.0 Nm	1003.0 Nm	Do not calculate torque
1-39	Motor poles	4 poles	4 poles	4 poles	Do not calculate poles
1-40	Back EMF at 1000 RPM	38 V	78 V	38 V	Do not calculate Back EMF
	PM start mode	0	0	0	0 = Off
	Compressor start max. speed [RPM]				
3-02	Minimum reference	300 RPM	300 RPM	300 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	30 s	Avoid too fast ramp
	Starting ramp up time	15 s	15 s	15 s	
	Ramp time	2 s	2 s	2 s	
	Select your application	Fan	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	120 Hz	60 Hz	120 Hz	
4-12	Motor speed low lim.	10 Hz	10 Hz	10 Hz	Matches 300 RPM
4-14	Motor speed high lim.	No [Hz]	No [Hz]	No [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	3	Automatic reset x 3
14-21	Automatic restart time	10 s	10 s	10 s	Reset time interval

**Table 24.**Parameter settings for Danfoss FC102 converters with Nidec PM motors

## 4. Reference documentation

- Danfoss Operating guide  
VLT<sup>®</sup> HVAC basic drive FC 101  
Publication no. MG18AA02, 04/2018
- Danfoss Programming guide  
VLT<sup>®</sup> HVAC basic drive FC 101  
Publication no. MG18B502, 04/2018
- Danfoss Design guide  
VLT<sup>®</sup> HVAC basic drive FC 101  
Publication no. MG18C802, 04/2018
- Danfoss Operating guide  
VLT<sup>®</sup> HVAC drive FC 102  
Publication no. MG16O202, 04/2018
- Danfoss Programming guide  
VLT<sup>®</sup> HVAC drive FC 102  
Publication no. MG11CE02, 03/2015
- Danfoss Design guide  
VLT<sup>®</sup> HVAC drive FC 102  
Publication no. MG11BC02, 06/2014



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