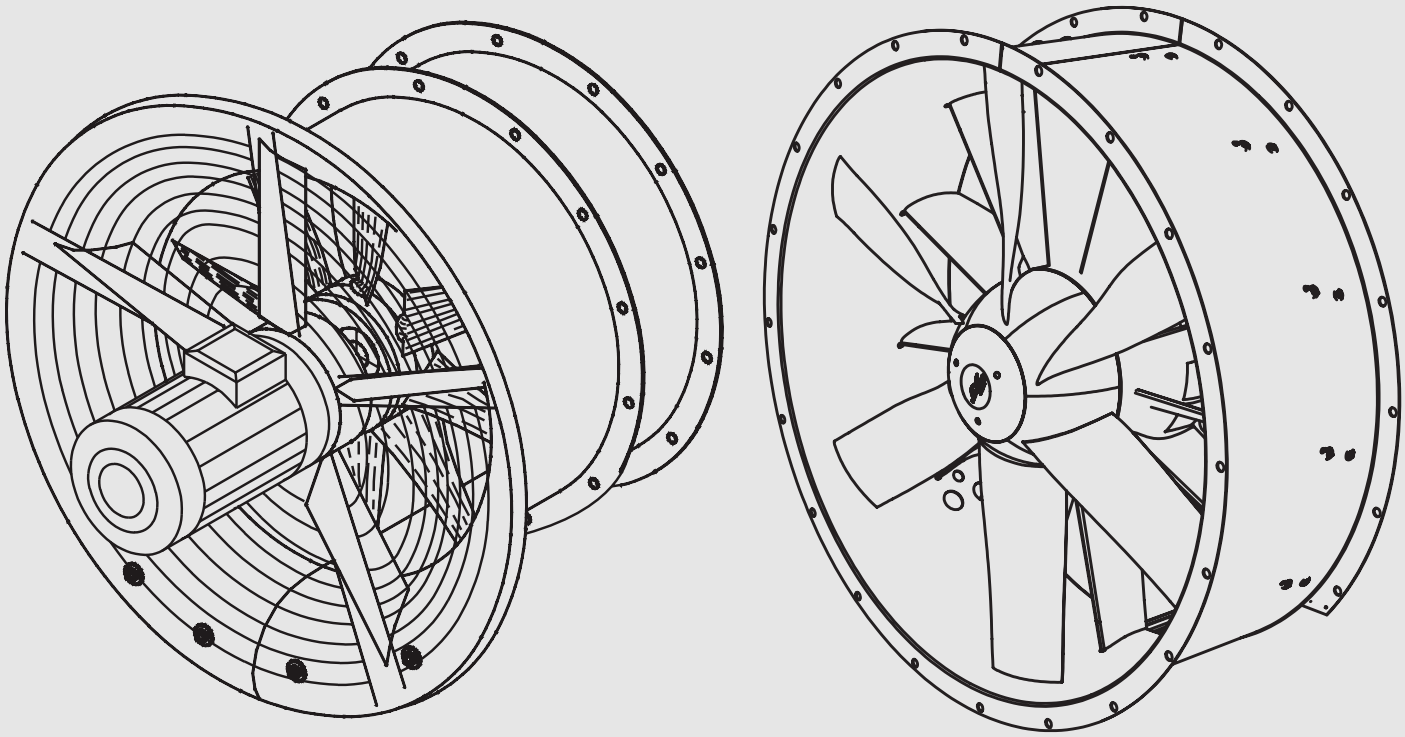
Building & Industry
NOVENCO
SCHAKO Group



Frequency converters DANFOSS® FC 101 and FC 102

NOVENCO configuration user guide

English
Original version

926867-0

Important

This document is provided 'as is'. Novenco Building & Industry A/S reserves the right to changes without further notice due to continuous product development.

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.

Document revision no.: MU 16207 0923

Document item no.: 926867-0

Patents and trademarks

Novenco®, 诺文科, 诺万科 and 诺克 are registered trademarks of Novenco Marine & Offshore A/S.
ZerAx® is a registered trademark of Novenco Building & Industry A/S.

AirBox™, NoVa™ and NovAx™ are trademarks of Novenco Building & Industry A/S.

VLT® is a registered trademark of Danfoss A/S.

Other trademarks in this document are the property of their respective owners.

The Novenco ZerAx processes of manufacture, technologies and designs are patented by Novenco A/S or Novenco Building & Industry A/S.
Pending patents include PCT no. EP2012/064908 and EP2012/064928.
Granted patents include Brazil no. BR-11-2012-008543-3; BR-11-2012-008545-0, BR-11-2012-008607-3, BR-11-2014-002282-8 and BR-11-2014-002426-0; Canada no. 2.777.140, 2.777.141, 2.777.144, 2.832.131 and 2.843.132; China no. ZL2010800458842, ZL2010800460965, ZL2010800464275 and ZL2012800387210; EU no. 2488759, 2488760, 2488761, 2739860 and 2739861; India no. 312464, 360298, 367515, 400863 and 403692; South Korea no. 10-1907239, 10-1933724, 10-1980600, 10-2011515 and 10-2127529; US no. 8.967.983, 9.200.641, 9.273.696 B2, 9.683.577 and 9.926.943 B2.
Granted designs include Brazil no. BR-30-2012-003932-0; Canada no. 146333; China no. 1514732, 1517779, 1515003, 1555664 and 2312963; EU no. 001622945-0001 to 001622945-0009 and 001985391 - 0001; India no. 246293; South Korea no. 30-0735804; UK no. 001622945-0001 to 001622945-0009 and 001985391 - 0001; US no. D665895S, D683840S, D692119S, D704323S, D712023S, D743018S, D755363S, D756500S, D821560S and D823452S.

Contents

1. General

The procedures in this guide serve as examples of how to set up and configure the Danfoss FC 101 and FC 102 frequency converter drives in combination with Novenco fans driven by either permanent magnet (PM) or alternating current (AC) motors.

STOP 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.

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

Table 1. Icons in guide

The guide is a supplement to the installation and maintenance guides delivered with Novenco NovAx™ ACL-ACN-ACW and ZerAx® AZL-AZN-AZW fans. Refer also to the motor manufacturers documentation. See appendix "4. Reference documentation".

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

2. Setup with start-up wizard

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

⚠ 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 rotor 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.

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.

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

5. **FC 101:** Optional step

   Set the following parameters.

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	4.5 A	7 A	5.8 A	Full-load current
1-25	Motor nominal speed	3000 RPM	3160 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 adaption (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	11.4 A	Full-load current
1-25	Motor nominal speed	4500 RPM	1980 RPM	2450 RPM	1700 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	157 V	
1-37	d-axis inductance (Ld)	5.15.0 mH	13.0 mH	13.0 mH	11.4 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.	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 adaption (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 = Parked

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

Parameters	Field names	Motor types				Comments
		Lafert 8p, 5.5 kW, 926528-0	Domel 10p, 6.6 kW, 927116-0	Domel 10p, 6.9 kW, 927207-0	Domel 10p, 7.2 kW, 927536-0	
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	400-480 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	11.4 A	12.0 A	12.0 A	14.6 A	Full-load current
1-25	Motor nominal speed	4500 RPM	1410 RPM	1730 RPM	1410 RPM	
1-26	Motor construction rated torque	11.7 Nm	44 Nm	40 Nm	44.0 Nm	
1-30	Stator resistance (Rs)	0.33 Ω	0.17 Ω	0.15 Ω	0.17 Ω	
1-39	Motor poles	8 poles	10 poles	10 poles	10 poles	
1-40	Back EMF at 1000 RPM	66 V	218 V	156 V	218 V	
1-37	d-axis inductance (Ld)	4.0 mH	7.5 mH	6.4 mH	7.5 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.	400 Hz	175 Hz	216.7 Hz	175.0 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 adaption (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

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, 926480-0	Lafert 8p, 7.5 kW, 926529-0	Domel 10p, 7.9 kW, 926481-0	Domel 10p, 7.9 kW, 927200-0	
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	400-480 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	15.1 A	18.6 A	16.0 A	Full-load current
1-25	Motor nominal speed	1410 RPM	4500 RPM	1730 RPM	1730 RPM	
1-26	Motor construction rated torque	40.0 Nm	15.9 Nm	40.0 Nm	40.0 Nm	
1-30	Stator resistance (Rs)	0.17 Ω	0.33 Ω	0.15 Ω	0.15 Ω	
1-39	Motor poles	10 poles	8 poles	10 poles	10 poles	
1-40	Back EMF at 1000 RPM	192 V	69 V	156 V	183 V	
1-37	d-axis inductance (Ld)	10.0 mH	3.2 mH	6.4 mH	5.8 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.	166.7 Hz	400 Hz	216 Hz	216 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 adaption (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

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

Parameters	Field names	Motor types				Comments
		Domel 12p, 8.3 kW, 927125-0	Domel 12p, 11.3 kW, 927526-0	Domel 12p, 11.7 kW, 926984-0	Domel 12p, 12.1 kW, 926482-0	
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	15.4 A	22.4 A	21.7 A	23.0 A	Full-load current
1-25	Motor nominal speed	620 RPM	770 RPM	2600 RPM	1600 RPM	
1-26	Motor construction rated torque	120.0 Nm	140 Nm	40 Nm	66 Nm	
1-30	Stator resistance (Rs)	0.66 Ω	0.50 Ω	0.22 Ω	0.26 Ω	
1-39	Motor poles	12 poles	12 poles	12 poles	12 poles	
1-40	Back EMF at 1000 RPM	518 V	416 V	123 V	197 V	
1-37	d-axis inductance (Ld)	12.0 mH	8.3 mH	2.7 mH	3.77 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.	83 Hz	92 Hz	310 Hz	210 Hz	
1-42	Motor cable length	[in meters]	[in meters]	[in meters]	[in meters]	
4-12	Motor speed low lim.	10 Hz (= 100 RPM)	10 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 adaption (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

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

Parameters	Field names	Motor types				Comments
		Domel 12p, 13.2 kW, 926986-0	Domel 12p, 13.4 kW, 927523-0	Domel 12p, 13.9 kW, 926987-0	Domel 12p, 14.7 kW, 927525-0	
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	23.2 A	26.6 A	27.5 A	29.2 A	Full-load current
1-25	Motor nominal speed	1860 RPM	800 RPM	1660 RPM	1170 RPM	
1-26	Motor construction rated torque	60 Nm	160 Nm	80 Nm	120 Nm	
1-30	Stator resistance (Rs)	0.24 Ω	0.35 Ω	0.17 Ω	0.23 Ω	
1-39	Motor poles	12 poles	12 poles	12 poles	12 poles	
1-40	Back EMF at 1000 RPM	172 V	400 V	193 V	273 V	
1-37	d-axis inductance (Ld)	3.2 mH	6.4 mH	2.8 mH	4.0 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.	230 Hz	96 Hz	220 Hz	140 Hz	
1-42	Motor cable length	[in meters]	[in meters]	[in meters]	[in meters]	
4-12	Motor speed low lim.	25 Hz	10 Hz (= 100 RPM)	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 adaption (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

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

Parameters	Field names	Motor types				Comments
		Domel 12p, 18.8 kW, 926985-0	Domel 12p, 19.3 kW, 926988-0	Domel 12p, 21.7 kW, 926989-0	Domel 12p, 31.0 kW, 926990-0	
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	35.0 A	36.0 A	42.9 A	54.0 A	Full-load current
1-25	Motor nominal speed	2790 RPM	2170 RPM	2070 RPM	1990 RPM	
1-26	Motor construction rated torque	60 Nm	80 Nm	100 Nm	120 Nm	
1-30	Stator resistance (Rs)	0.1 Ω	0.11 Ω	0.09 Ω	0.07 Ω	
1-39	Motor poles	12 poles	12 poles	12 poles	12 poles	
1-40	Back EMF at 1000 RPM	115 V	148 V	155 V	161 V	
1-37	d-axis inductance (Ld)	1.3 mH	1.6 mH	1.51 mH	1.2 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.	350 Hz	300 Hz	270 Hz	250 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 adaption (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

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

Parameters	Field names	Motor types		Comments
		Domel 12p, 38.3 kW, 927684-0	Domel 12p, 44.7 kW, 927524-0	
0-03	Regional settings	0	0	International
0-06	Grid type	380-440 V / 50 Hz	380-440 V / 50 Hz	Set voltage level
1-10	Motor construction/ Motor type	1	1	PM, non-salient SPM
1-22	Motor voltage	400 V AC	400 V AC	Nominal value
1-24	Motor current	76.0 A	89.0 A	Full-load current
1-25	Motor nominal speed	3050 RPM	2670 RPM	
1-26	Motor construction rated torque	120 Nm	160 Nm	
1-30	Stator resistance (Rs)	0.035 Ω	0.035 Ω	
1-39	Motor poles	12 poles	12 poles	
1-40	Back EMF at 1000 RPM	105 V	120 V	
1-37	d-axis inductance (Ld)	0.6 mH	0.6 mH	
30-22	Locked rotor	0	0	0 = Off
30-23	Locked rotor detection time	0.1 s	0.1 s	
4-19	Max output freq.	366 Hz	320 Hz	
1-42	Motor cable length	[in meters]	[in meters]	
4-12	Motor speed low lim.	25 Hz	25 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No. [Hz]	No. [Hz]	See specifications from AirBox or labels on fan casing
3-41	Ramp 1 ramp up time	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1 ramp down time	30 s	30 s	Avoid too fast ramp
1-73	Flying start	1	1	1 = Enabled
6-19	Terminal 53 mode	1	1	1 = Voltage control signal
6-10	Terminal 53 low volt	0.07 V	0.07 V	
6-11	Terminal 53 high volt	10 V	10 V	
3-02	Minimum ref.	0	0	
3-03	Maximum ref.	No. [Hz]	No. [Hz]	Same as parameter 4-14
5-40	Function relay 1	No.	No.	Alarm relay
5-40	Function relay 2	No.	No.	Warning relay
1-29	Automatic motor adaption (AMA)	1	1	1 = Enable AMA Optimises motor performance and exits wizard.
6-14	Terminal 53 low Ref. / feedb. value	0	0	
6-15	Terminal 53 high Ref. / feedb. value	No [Hz]	No [Hz]	Same as parameter 4-14
14-20	Reset mode	3	3	Automatic reset x 3
14-21	Automatic restart time	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	4.5 A	5.8 A	8.3 A	9.1 A	Full-load current
1-25	Motor nominal speed	3160 RPM	4500 RPM	4500 RPM	1980 RPM	
1-26	Motor rated torque	6.0 Nm	19.1 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
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	Lafert 8p, 5.5 kW, 926528-0	Domel 10p, 6.6 kW, 927116-0	
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	11.4 A	11.4 A	12.0 A	Full-load current
1-25	Motor nominal speed	2450 RPM	1700 RPM	4500 RPM	1410 RPM	
1-26	Motor rated torque	16.0 Nm	24.0 Nm	35.0 Nm	44.0 Nm	Do not calculate torque
1-39	Motor poles	10 poles	10 poles	8 poles	10 poles	Do not calculate poles
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.	283.3 Hz	208 Hz	400 Hz	175 Hz	
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 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, 6.9 kW, 927207-0	Domel 10p, 7.2 kW, 926480-0	Domel 10p, 7.2 kW, 927536-0	Lafert 8p, 7.5 kW, 926529-0	
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	14.6 A	14.6 A	15.1 A	Full-load current
1-25	Motor nominal speed	1730 RPM	1410 RPM	1410 RPM	4500 RPM	
1-26	Motor rated torque	40.0 Nm	40.0 Nm	44.0 Nm	15.9 Nm	Do not calculate torque
1-39	Motor poles	10 poles	10 poles	10 poles	8 poles	Do not calculate poles
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.	216.7 Hz	166.7 Hz	175 Hz	400 Hz	
4-12	Motor speed low lim.	20 Hz	20 Hz	20 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 14. Parameter settings for Danfoss FC102 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types				Comments
		Domel 10p, 7.9 kW, 926481-0	Domel 10p, 7.9 kW, 927200-0	Domel 12p, 8.6 kW, 927125-0	Domel 12p, 11.3 kW, 927526-0	
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	18.6 A	16.0 A	15.4 A	22.4 A	Full-load current
1-25	Motor nominal speed	1730 RPM	1730 RPM	625 RPM	770 RPM	
1-26	Motor rated torque	40.0 Nm	40.0 Nm	120.0 Nm	140.0 Nm	Do not calculate torque
1-39	Motor poles	10 poles	10 poles	12 poles	12 poles	Do not calculate poles
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.	216 Hz	216 Hz	83 Hz	92 Hz	
4-12	Motor speed low lim.	20 Hz	20 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 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, 11.7 kW, 926984-0	Domel 12p, 12.1 kW, 926482-0	Domel 12p, 13.4 kW, 927523-0	Domel 12p, 13.9 kW, 926987-0	
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	21.7 A	23.0 A	26.6 A	27.5 A	Full-load current
1-25	Motor nominal speed	2600 RPM	1600 RPM	800 RPM	1660 RPM	
1-26	Motor rated torque	40.0 Nm	66.0 Nm	160.0 Nm	80.0 Nm	Do not calculate torque
1-39	Motor poles	12 poles	12 poles	12 poles	12 poles	Do not calculate poles
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.	310 Hz	210 Hz	96 Hz	220 Hz	
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 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, 18.8 kW, 926985-0	Domel 12p, 19.3 kW, 926988-0	Domel 12p, 21.7 kW, 926989-0	Domel 12p, 31.0 kW, 926990-0	
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	35.0 A	36.0 A	42.9 A	54.0 A	Full-load current
1-25	Motor nominal speed	2790 RPM	2170 RPM	2070 RPM	1990 RPM	
1-26	Motor rated torque	60.0 Nm	80.0 Nm	100.0 Nm	120.0 Nm	Do not calculate torque
1-39	Motor poles	12 poles	12 poles	12 poles	12 poles	Do not calculate poles
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.	279 Hz	300 Hz	270 Hz	250 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 17. Parameter settings for Danfoss FC102 converters with Domel or Lafert PM motors

Parameters	Field names	Motor types		Comments
		Domel 12p, 38.3 kW, 927684-0	Domel 12p, 44.7 kW, 927524-0	
0-01	Language	English	English	Set Language to regional
1-10	Motor type	PM, Non-salient SPM	PM, Non-salient SPM	
1-90	Thermal motor protection	No	No	
1-24	Motor current	76.0 A	89.0 A	Full-load current
1-25	Motor nominal speed	3050 RPM	2670 RPM	
1-26	Motor rated torque	120.0 Nm	160.0 Nm	Do not calculate torque
1-39	Motor poles	12 poles	12 poles	Do not calculate poles
3-02	Minimum reference	250 RPM	250 RPM	
3-03	Maximum reference	No [RPM]	No [RPM]	See specifications from AirBox or fan casing label
	Apply max. reference to max. drive freq.	Yes	Yes	
3-41	Ramp 1, ramp up time	30 s	30 s	Avoid too fast ramp
3-42	Ramp 1, ramp down time	30 s	30 s	Avoid too fast ramp
	Select your application	Fan	Fan	
1-29	Automatic Motor Adaption (AMA)	Yes	Yes	An AMA is done next time Hand On is pushed
4-19	Max output freq.	366 Hz	300 Hz	
4-12	Motor speed low lim.	25 Hz	25 Hz	Matches 250 RPM
4-14	Motor speed high lim.	No. [Hz]	No. [Hz]	See specifications from AirBox or fan casing label
3-03	Maximum ref.	No [RPM]	No [RPM]	Same as parameter 4-14
6-15	Terminal 53 high Ref. / feedb. value	No [RPM]	No [RPM]	Same as parameter 4-14
14-20	Reset mode	3	3	Automatic reset x 3
14-21	Automatic restart time	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	Back EMF at 1000 RPM	72 V	79 V	73 V	78.7 V	Do not calculate Back EMF
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
	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 Domel or Lafert 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	PMaSynRM	PMaSynRM	PMaSynRM	PMaSynRM	
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	Back EMF at 1000 RPM	72 V	72 V	36 V	67 V	Do not calculate Back EMF
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
	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 Domel or Lafert 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	PMaSynRM	PMaSynRM	PMaSynRM	PMaSynRM	
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	Back EMF at 1000 RPM	72 V	39 V	66 V	77 V	Do not calculate Back EMF
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
	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	PMaSynRM	PMaSynRM	PMaSynRM	PMaSynRM	
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	Back EMF at 1000 RPM	77 V	33 V	82 V	33 V	Do not calculate Back EMF
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
	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	PMaSynRM	PMaSynRM	PMaSynRM	PMaSynRM	
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	Back EMF at 1000 RPM	80 V	67 V	70 V	36 V	Do not calculate Back EMF
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
	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	PMaSynRM	PMaSynRM	PMaSynRM	
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	Back EMF at 1000 RPM	38 V	78 V	38 V	Do not calculate Back EMF
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
	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® HVAC basic drive FC 101
  Publication no. MG18AA02, 04/2018
- Danfoss Programming guide
  VLT® HVAC basic drive FC 101
  Publication no. MG18B502, 04/2018
- Danfoss Design guide
  VLT® HVAC basic drive FC 101
  Publication no. MG18C802, 04/2018
- Danfoss Operating guide
  VLT® HVAC drive FC 102
  Publication no. MG16O202, 04/2018
- Danfoss Programming guide
  VLT® HVAC drive FC 102
  Publication no. MG11CE02, 03/2015
- Danfoss Design guide
  VLT® HVAC drive FC 102
  Publication no. MG11BC02, 06/2014

5. Declaration of conformity

Refer to the declaration information in the documentation for the fans and frequency converters.

info@novenco-building.com

+45 70 77 88 99

novenco-building.com