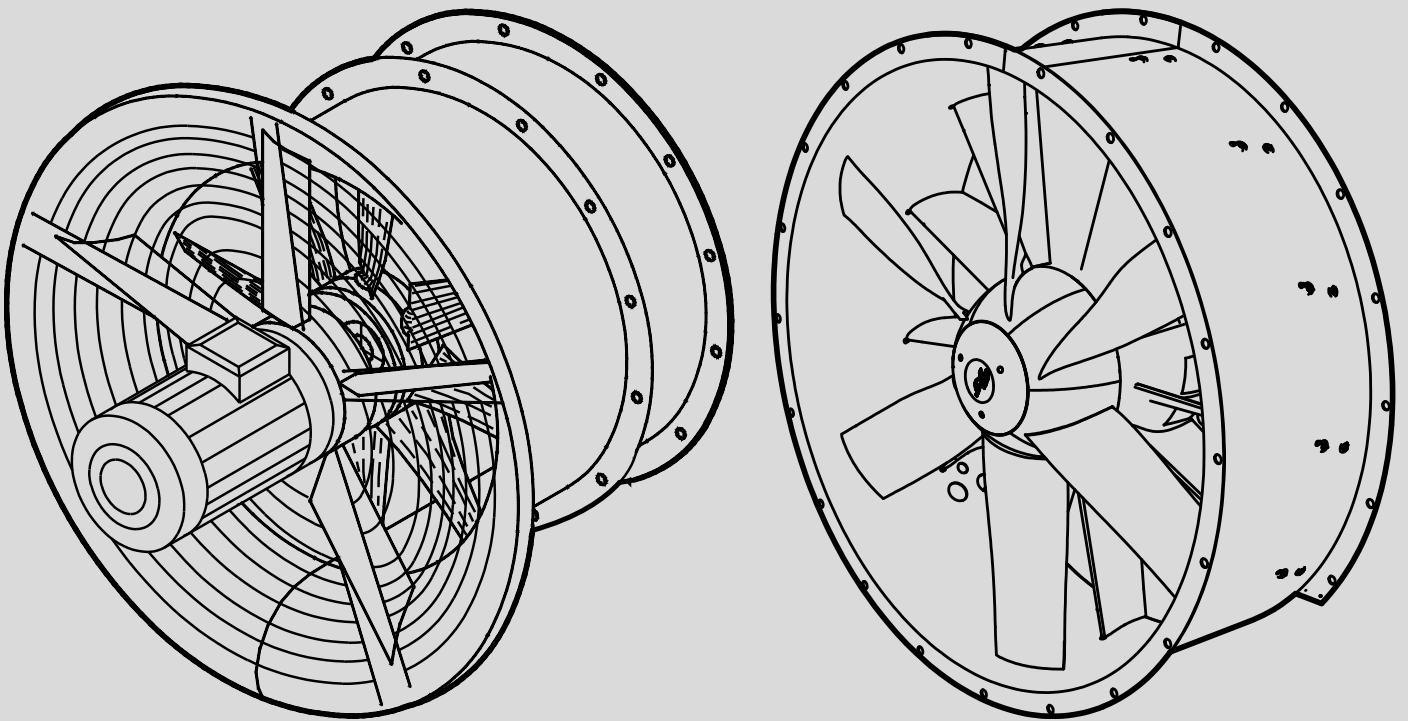


Building & Industry



SCHAKO Group



Frequency converters

ABB® ACH480, ACH580 and ACS180

NOVENCO control and parameters

user guide

English
Original version

931016-0

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.

Copyright © 2026, NOVENCO Building & Industry A/S. All rights are reserved.

Document revision no.: MU 16600 0926

Document item no.: 931016-0

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.

ABB[®] is a registered trademark of ABB Asea Brown Boveri Ltd.

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.

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; PCT no. EP2012/064908 and EP2012/064928; 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. Control 4

1.1 Safety instructions 4

1.2 Communication module installation 5

1.3 Close safety circuits 5

1.4 Wire configuration 6

1.5 Set parameters and do ID run 7

1.6 Set the control of the motor RPM 9

2. Parameters 11

2.1 400 VAC PM motors ... 11

Domel 10p, AZ 108-55, 2.2 kW 11

Domel 10p, 2.2 kW, 926418-0.. 11

Domel 10p, 4.1 kW, 926478-0.. 11

Domel 10p, 4.1 kW, 927275-0.. 11

Domel 10p, 4.7 kW, 926479-0.. 12

Domel 10p, 6.6 kW, 927116-0.. 12

Domel 10p, 6.9 kW, 927207-0.. 12

Domel 10p, 7.2 kW, 927536-0.. 12

Domel 10p, 7.2 kW, 926480-0.. 13

Domel 10p, 7.9 kW, 926481-0.. 13

Domel 10p, 7.9 kW, 927200-0.. 13

Domel 12p, 8.3 kW, 927125-0.. 13

Domel 12p, 11.3 kW, 927526-0.. 14

Domel 12p, 11.7 kW, 926984-0.. 14

Domel 12p, 12.1 kW, 926482-0.. 14

Domel 12p, 13.2 kW, 927986-0.. 14

Domel 12p, 13.4 kW, 927523-0.. 15

Domel 12p, 13.9 kW, 926987-0.. 15

Domel 12p, 14.7 kW, 926525-0.. 15

Domel 12p, 18.8 kW, 926985-0.. 15

Domel 12p, 19.3 kW, 926988-0.. 16

Domel 12p, 21.7 kW, 926989-0.. 16

Domel 12p, 31 kW, 926990-0 .. 16

Domel 12p, 38.3 kW, 926985-0.. 16

Domel 12p, 44.7 kW, 927524-0.. 17

Lafert 8p, 2.2 kW, 926524-0 ... 18

Lafert 8p, 3 kW, 926525-0 18

Lafert 8p, 3 kW, 926526-0 18

Lafert 8p, 4 kW, 926527-0 18

Lafert 8p, 5.5 kW, 926528-0 ... 19

Lafert 8p, 7.5 kW, 926529-0 ... 19

Nidec 4p, 11 kW, 927858-0 20

Nidec 4p, 15 kW, 927857-0 20

Nidec 4p, 18.5 kW, 927859-0 .. 20

Nidec 4p, 18.5 kW, 927869-0 .. 20

Nidec 4p, 22 kW, 927860-0 21

Nidec 4p, 30 kW, 927861-0 21

Nidec 4p, 32 kW, 927868-0 21

Nidec 4p, 35 kW, 927872-0 21

Nidec 4p, 37 kW, 927862-0 22

Nidec 4p, 37 kW, 927870-0 22

Nidec 4p, 41 kW, 927874-0 22

Nidec 4p, 45 kW, 927863-0 22

Nidec 4p, 55 kW, 927864-0 23

Nidec 4p, 64 kW, 927871-0 23

Nidec 4p, 75 kW, 927865-0 23

Nidec 4p, 75 kW, 927873-0 23

Nidec 4p, 90 kW, 927866-0 24

Nidec 4p, 94 kW, 927876-0 24

Nidec 4p, 117 kW, 927878-0 ... 24

Nidec 4p, 172 kW, 927875-0 ... 24

Nidec 4p, 206 kW, 927877-0 ... 25

Nidec 4p, 220 kW, 927879-0 ... 25

Nidec 4p, 315 kW, 927880-0 ... 25

3. Reference documentation 26

Appendices 27

Appendix - A.

The ACS180 display 27

1. Control

The procedures and parameters in this guide serve as an example of how to control and set the ABB ACH480, ACH580, and ACS180 variable frequency drives (VFDs) for operation with NOVENCO NovAx™ and ZerAx® axial fans



The complete installation which include fans and frequency converters must be approved by the responsible installer, before setup can begin.

Please read all relevant parts of this guide before set up.

This guide supplements the installation and maintenance guides for the NOVENCO NovAx™ ACL-ACN-ACW and ZerAx® AZL-AZN-AZW fans. See appendix "3. Reference documentation" and the motor documentation that accompany the fans.

The procedures and methods in this guide must be followed for the warranty to remain valid.

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

Table 1. Icons in guide



This guide applies to the global product types. However, for North American product types, please refer to specific manuals on the ABB website.



Follow the safety instructions for the drives. If changes to or maintenance of the installation are required make sure this is done by authorised personnel and according to current legislation.

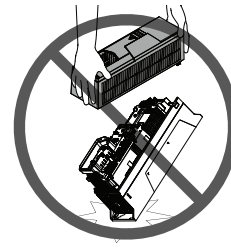
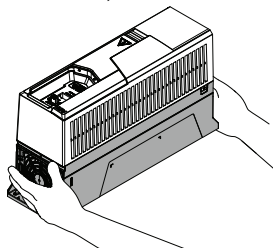
1.1 Safety instructions

Refer to the instructions for the VFDs for information on how to handle the units safely.

Lift instructions

- **ACH580 frames R1 and R2, IP21 (UL Type 1)**

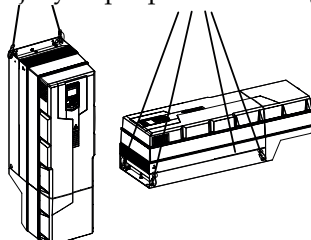
Lift at the drive base, not in the cover. The cover can come loose and cause the drive to fall.



- **ACH580 frames R5 - R9**

Lift with a lifting device in the lifting-eyes of the device.

The drive is heavy with a high centre of gravity. It is therefore prone to overturning with risk of physical injury to people and damage to the drive.



1.2 Communication module installation



Some drives have the necessary communication pins by default and do therefore not require installation of the communication module.

The procedure in this section explains how to install the communication module on the drive, i.e. an I/O module or a field-bus module.

To install

1. Pull out the locking tab of the module.
2. Align the module contacts with contacts on the drive.
Carefully, push the module into position.
3. Push in the locking tab of the module.
4. Tighten the locking screw to attach and electrically ground the module.

1.3 Close safety circuits

Check the safety circuits are closed, i.e. safe torque is off, otherwise the drive cannot run.

The drive may already have the safety circuits closed which is seen by cables that interconnect the selected pins.

If the safety circuits are open, connect the pins on the communication module with cables according to the respective drive diagrams below.

ACH480

34	SGND	Safe torque off (STO). Both circuits must be closed for the drive to start. The drawing shows the simplified connection of a safety circuit through safety contacts. If STO is not used, leave the factory-installed jumpers in place. See also section Safe torque off (STO).	×
35	IN1		×
36	IN2		×
37	OUT1		×

ACH580

34	OUT1	Safe torque off. Factory connection. Both circuits must be closed for the drive to start. See chapter <i>The Safe torque off function in ACH580-01 hardware manual</i> (3AUA0000076331 [English]).
35	OUT2	
36	SGND	
37	IN1	
38	IN2	

10	+24V
11	DGND
12	DCOM
13	DI1
14	DI2
15	DI3
16	DI4
17	DI5
18	DI6

ACS180

Safe torque off (STO)(only on ACS180-04S)			
1	S+	Safe torque off function. Connected at the factory. Drive starts only when both circuits are closed.	
2	SGND		
3	S1		
4	S2		

1.4 Wire configuration

Connect the motor and power up the VFD according to the VFD configuration in the diagrams in this section.



High voltage powers the VFD and the motor. Take the necessary precautions to ensure a safe work environment.



The first time the VFD is run after installation and if it has been disconnected from power for more than a year, the capacitors must be reformed. Refer to ABB's website and documentation for instructions on how to reform the capacitors.

The diagrams below show how to connect the motor to the VFD and how to connect the VFD to the power grid. It is recommended to use shielded power cables.

The diagrams also show how to connect the brake chopper (connected to pins R- and R+ UDC+). Connect the brake chopper if it is possible for the given drive and if the application requires it. Otherwise ignore the brake chopper and continue without it.

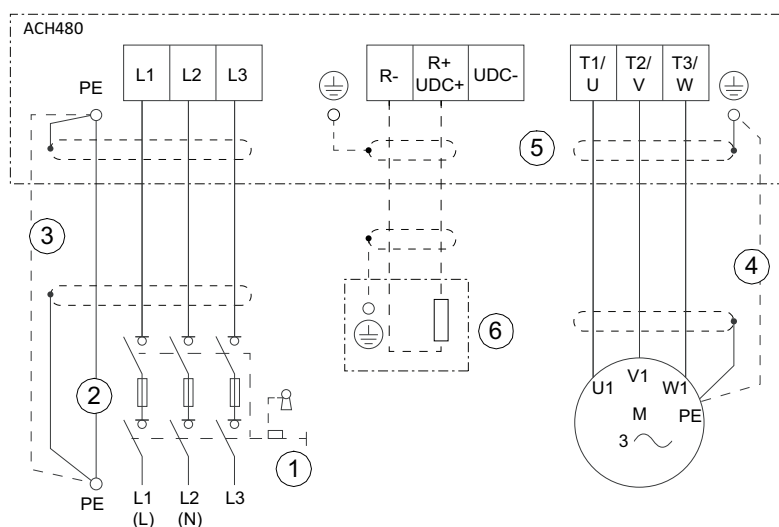


Figure 1. Connection of power cables – ACH480

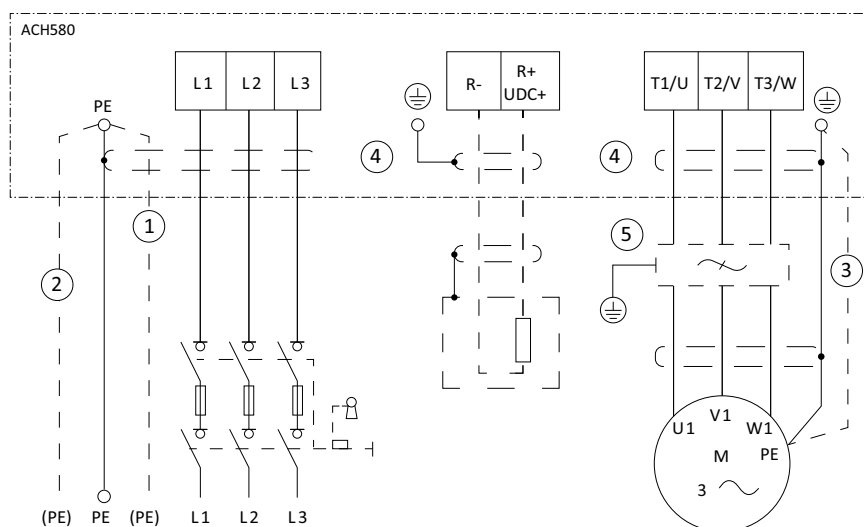


Figure 2. Connection of power cables – ACH580

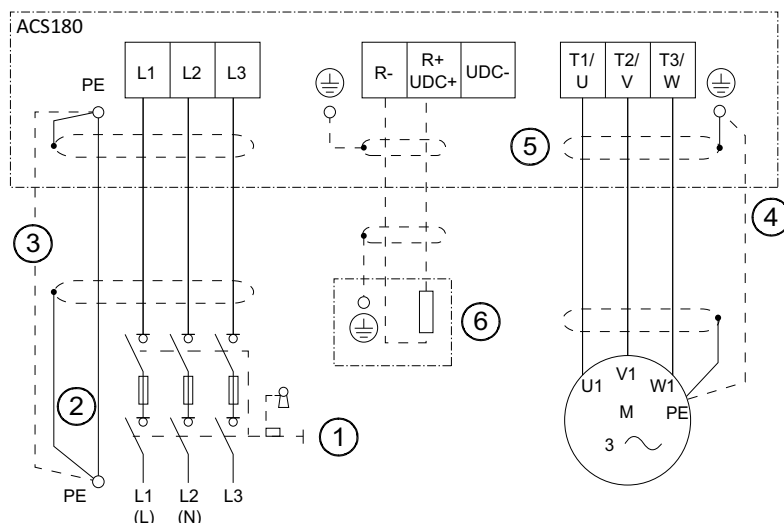


Figure 3. Connection of power cables – ACS180

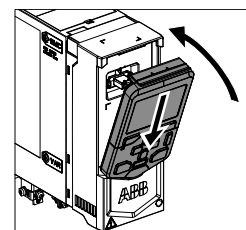
1.5 Set parameters and do ID run

To set

1. Check the control panel is connected to the VFD or built in. Connect it if this is not the case.

To install

- a. Close the front cover and tighten the screw.
- b. Put the bottom edge of the control panel into position.
- c. Push the top of the control panel until it locks into position.



Notice: If working with ACS180, connect the control panel to the drive with an Ethernet cable. If working with ACS180 and the control panel is unavailable, see "Appendix - A. The ACS180 display" on page 27 for a brief introduction to the display.

2. The control panel may prompt for selection of drive. In most situations only a single drive is available.

Notice: The control panel most likely automatically selects the drive, if only one is connected, and this step can be skipped.

3. If the First start assistant appears, select Exit and then Next.
4. Reset to the factory settings.

To reset to factory settings

- a. Select Menu > Primary settings (for ACS180: Settings) > Reset to defaults > Reset all to factory defaults (for ACS180: Reset Home view layout).
- b. Select the drive to reset.

Notice: The control panel most likely automatically selects the drive, if only one is connected, and this step can be skipped.

- c. Language selection - appears after the factory reset. It is recommended to select English due to terminology.
- d. If the First start assistant reappears after factory reset, select Exit.

5. Reboot the control board (skip this step for ABB ACS180).

To reboot control board

- a. On the control panel, select Menu > Parameters > Complete list.
- b. Select 07 System info > 07.35 Drive configuration > set parameter 1 - Base unit to 0.
- c. Select Complete list > 96 System > 96.08 Control board boot > select Reboot.

The drive reboots.

6. Set the parameters.

Parameters are set with the control panel or with the software Drive composer by ABB. See the respective procedures below.



When setting the parameters, follow the order of the parameters in the Configuration user guide.



Please note the parameter 99.13 ID run requested, which once set requires an ID run to be performed, i.e. wait with other parameter settings until the ID run has completed.



When the ID run is active, the fan motor and impeller operate. Make sure to take appropriate safety measures and ensure a safe work environment.

• Option 1 – Use control panel

- a. On the control panel, select Menu > Parameters > Complete list.
- b. Set the parameters according to the Configuration user guide.
- c. After setting parameter 99.13 ID run requested, the control panel displays the Warning AFF6 Identification run - push Hand button on the control panel > VFD performs an ID run.

Notice: If the control panel does not display the warning, push the Hand button to initiate the ID run.

Notice: If the warning Drive cannot start appears, a start interlock signal is missing. Check interlock source and verify interlock configuration.

To troubleshoot

1. Select How to fix.
2. The list of Start interlocks appears. Check that all of them are set to Not used. Start interlock 1 is likely set to DI4 - set it to Not used.
3. Push Hand button on control panel to perform the ID run.

Notice: If the ACS180 fails to perform the ID run without a warning display, try the following.

To force ID run on ACS180

1. Go back to Complete list.
 2. Select 20. Start/stop/direction > Set parameters 20.41 - 20.44
Start interlock 1 - 4 to Not used.
 3. Push Hand button to perform the ID run.
 4. Navigate back to parameter group 99. Motor data.
- d. After the ID run completes, set the parameters from the Configuration user guide that follow the 99.13 ID Run requested.

• **Option 2 – Use Drive composer**

- a. Connect the VFD to a PC via the USB mini port on the control panel front.
- b. Start the Drive Composer Entry program.
- c. Select USB connection, Select the proper COM port and click Connect.
Notice: Find the COM port in the Windows Device manager > expand Ports (COM & LPT) > find ABB Drives Assistant control panel or similar.
- d. Set the parameters in accordance to the Configuration user guide.
- e. Once the parameter 99.13 ID run requested is set, the Drive composer issues the Warning AFF6 Identification run > click the Start  button in Drive composer to perform the ID run.
Notice: If the ID run fails and the warning Start interlock (no.) : AFEE appears, try the following.

To resolve a failed ID run

1. Select 20. Start/stop/direction > Set parameters 41. - 44. Start interlock (1 - 4) to Not used.
 2. Push the Hand button to perform the ID run. It may run automatically, if the Hand button was pushed before the parameters were changed.
- f. Set the parameters that follow the 99.13 ID Run requested from the Configuration user guide.

1.6 Set the control of the motor RPM

Available control modes

- Voltage mode – is most common
- Current mode – is most immune to noise
- Control panel – offers best control

Voltage and Current modes

1. Connect the cables on the communication module.

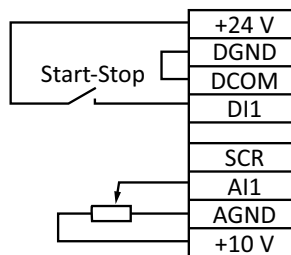


Figure 4. Connection of communication module

2. Configure the Start-Stop switch with the following parameters.

Parameters	Field names
20.1	Ext1 commands In1 Start
20.3	Ext1 in1 source DI1

Table 2. Start-Stop parameters

3. Configure analogue control with the parameters 12.15 - 12.20.

Example: A motor has max. 1500 RPM and is to be controlled by analogue input of 0 - 10 V. This can be set the following way.

Parameter no.	Parameter name	Value
12.15	AI1 unit selection	V
12.17	AI1 min.	0,000
12.18	AI1 max.	10,000
12.19	AI1 scaled at AI1 min.	0,000
12.20	AI1 scaled at AI1 max.	1500,000
22.11	Ext speed ref1	Set AI1 scaled

Table 3. Sample settings for analogue mode

4. Push Auto on the control panel or in the Drive composer to release the local control.

The Start-Stop switch can now be used for on-off control of the motor and the analogue signal for motor speed.

Control panel

1. To control the motor RPM with the control panel, push the Hand button and use the up-down arrows. Push Off to stop the motor.

2. Parameters

2.1 400 VAC PM motors

Parameters	Field names	Motor types				Comments
		Domel 10p, AZ 108-55, 2.2 kW	Domel 10p, 2.2 kW, 926418-0	Domel 10p, 4.1 kW, 926478-0	Domel 10p, 4.1 kW, 927275-0	
99.03	Motor type	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	4.1 A	4.5 A	9.1 A	8.4 A	Full-load current (FLC)
99.07	Motor nominal voltage	299.6 V	300.2 V	285.12 V	338.1 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = 3x70 = 210 V
		299.6	300.2	285.12	338.1	Back EMF calc check
	Back EMF 1000 RPM	107	95	144	138	
	Nominal mult.	2.8	3.16	1.98	2.45	
99.08	Motor nominal frequency	233.3 Hz	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	2800 RPM	3160 RPM	1980 RPM	2450 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	2.2 kW	2.2 kW	4.1 kW	4.1 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable is using mechanical brake.
21.13	Auto phasing mode	N/A	N/A	N/A	N/A	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	250 RPM	250 RPM	250 RPM	250 RPM	
30.12	Maximum speed	3708 RPM	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 4. Parameter settings for ABB ACH480-ACH580-ACS180 converters with Domel PM motors

Parameters	Field names	Motor types				Comments
		Domel 10p, 4.7 kW, 926479-0	Domel 10p, 6.6 kW, 927116-0	Domel 10p, 6.9 kW, 927207-0	Domel 10p, 7.2 kW, 927536-0	
99.03	Motor type	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	11.4 A	12 A	12 A	14.6 A	Full-load current (FLC)
99.07	Motor nominal voltage	266.9 V	307.38 V	269.88 V	307.38 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		266.9	307.38	269.88	307.38	Back EMF calc check
	Back EMF 1000 RPM	157	218	156	218	
	Nominal mult.	1.7	1.41	1.73	1.41	
99.08	Motor nominal frequency	50 Hz	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	1700 RPM	1410 RPM	1730 RPM	1410 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	4.7 kW	6.6 kW	6.9 kW	7.2 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable is using mechanical brake.
21.13	Auto phasing mode	N/A	N/A	N/A	N/A	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	250 RPM	250 RPM	250 RPM	250 RPM	
30.12	Maximum speed	<refer to spec.>	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 5. Parameter settings for ABB ACH480-ACH580-ACS180 converters with Domel PM motors

Parameters	Field names	Motor types				Comments
		Domel 10p, 7.2 kW, 926480-0	Domel 10p, 7.9 kW, 926481-0	Domel 10p, 7.9 kW, 927200-0	Domel 12p, 8.3 kW, 927125-0	
99.03	Motor type	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	14.6 A	18.6 A	16 A	15.4 A	Full-load current (FLC)
99.07	Motor nominal voltage	270.72 V	269.88 V	316.59 V	321.16 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		270.72	269.88	316.59	321.16	Back EMF calc check
	Back EMF 1000 RPM	192	156	183	518	
	Nominal mult.	1.41	1.73	1.73	0.62	
99.08	Motor nominal frequency	50 Hz	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	1410 RPM	1730 RPM	1730 RPM	620 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	7.2 kW	7.9 kW	7.9 kW	8.3 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable is using mechanical brake.
21.13	Auto phasing mode	N/A	N/A	N/A	N/A	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	250 RPM	250 RPM	250 RPM	250 RPM	
30.12	Maximum speed	<refer to spec.>	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 6. Parameter settings for ABB ACH480-ACH580-ACS180 converters with Domel 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, 927986-0	
99.03	Motor type	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	22.4 A	21.7 A	23 A	23.2 A	Full-load current (FLC)
99.07	Motor nominal voltage	320.32 V	319.8 V	315.2 V	319.92 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		320.32	319.8	315.2	319.92	Back EMF calc check
	Back EMF 1000 RPM	416	123	197	172	
	Nominal mult.	0.77	2.6	1.6	1.86	
99.08	Motor nominal frequency	50 Hz	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	770 RPM	2600 RPM	1600 RPM	1860 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	11.3 kW	11.7 kW	12.1 kW	13.2 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable is using mechanical brake.
21.13	Auto phasing mode	N/A	N/A	N/A	N/A	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	250 RPM	250 RPM	250 RPM	250 RPM	
30.12	Maximum speed	<refer to spec.>	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 7. Parameter settings for ABB ACH480-ACH580-ACS180 converters with Domel PM motors

Parameters	Field names	Motor types				Comments
		Domel 12p, 13.4 kW, 927523-0	Domel 12p, 13.9 kW, 926987-0	Domel 12p, 14.7 kW, 926525-0	Domel 12p, 18.8 kW, 926985-0	
99.03	Motor type	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	26.6 A	27.5 A	29.2 A	35 A	Full-load current (FLC)
99.07	Motor nominal voltage	320 V	320.38 V	319.41 V	320.85 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		320	320.38	319.41	320.85	Back EMF calc check
	Back EMF 1000 RPM	400	193	273	115	
	Nominal mult.	0.8	1.66	1.17	2.79	
99.08	Motor nominal frequency	50 Hz	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	800 RPM	1660 RPM	1170 RPM	2790 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	13.4 kW	13.9 kW	14.7 kW	18.8 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable is using mechanical brake.
21.13	Auto phasing mode	N/A	N/A	N/A	N/A	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	250 RPM	250 RPM	250 RPM	250 RPM	
30.12	Maximum speed	<refer to spec.>	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 8. Parameter settings for ABB ACH480-ACH580-ACS180 converters with Domel PM motors

Parameters	Field names	Motor types				Comments
		Domel 12p, 19.3 kW, 926988-0	Domel 12p, 21.7 kW, 926989-0	Domel 12p, 31 kW, 926990-0	Domel 12p, 38.3 kW, 926985-0	
99.03	Motor type	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	36 A	42.9 A	54 A	76 A	Full-load current (FLC)
99.07	Motor nominal voltage	321.16 V	320.85 V	320.89 V	320.25 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		321.16	320.85	320.89	320.25	Back EMF calc check
	Back EMF 1000 RPM	148	155	161	105	
	Nominal mult.	2.17	2.07	1.99	3.05	
99.08	Motor nominal frequency	50 Hz	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	2170 RPM	2070 RPM	1990 RPM	3050 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	19.3 kW	21.7 kW	31 kW	38.3 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable is using mechanical brake.
21.13	Auto phasing mode	N/A	N/A	N/A	N/A	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	250 RPM	250 RPM	250 RPM	250 RPM	
30.12	Maximum speed	<refer to spec.>	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 9. Parameter settings for ABB ACH480-ACH580-ACS180 converters with Domel PM motors

Parameters	Field names	Motor types				Comments
		Domel 12p, 44.7 kW, 927524-0				
99.03	Motor type	[1] Permanent magnet motor				Select motor type
99.04	Motor control mode	[0] Vector				Use Vector mode with PM motors
99.06	Motor nominal current	89 A				Full-load current (FLC)
99.07	Motor nominal voltage	320.4 V				Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		320.4				
	Back EMF 1000 RPM	120				Back EMF calc check
	Nominal mult.	2.67				
99.08	Motor nominal frequency	50 Hz				Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	2670 RPM				Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	44.7 kW				Motor power rating from nameplate
99.13	ID Run requested	Standstill				When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic				Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast				Default = Coast. Application specific selection. Coast may not be suitable is using mechanical brake.
21.13	Auto phasing mode	N/A				Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s				Avoid low ramp times
23.13	Deceleration time 1	30 s				Avoid low ramp times
30.11	Minimum speed	250 RPM				
30.12	Maximum speed	<refer to spec.>				Refer to fan nameplate or Air-Box tech. spec.

Table 10.Parameter settings for ABB ACH480-ACH580-ACS180 converters with Domel PM motors

Parameters	Field names	Motor types				Comments
		Lafert 8p, 2.2 kW, 926524-0	Lafert 8p, 3 kW, 926525-0	Lafert 8p, 3 kW, 926526-0	Lafert 8p, 4 kW, 926527-0	
99.03	Motor type	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	[1] Permanent magnet motor	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	5.1 A	7 A	5.8 A	8.3 A	Full-load current (FLC)
99.07	Motor nominal voltage	273 V	273 V	292.5 V	292.5 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		273	273	292.5	292.5	Back EMF calc check
	Back EMF 1000 RPM	91	91	65	65	
	Nominal mult.	3	3	4.5	4.5	
99.08	Motor nominal frequency	50 Hz	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = $\text{RPM} \times \text{poles} / 120$ if no frequency.
99.09	Motor nominal speed	3000 RPM	3000 RPM	4500 RPM	4500 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	2.2 kW	3 kW	3 kW	4 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable is using mechanical brake.
21.13	Auto phasing mode	N/A	N/A	N/A	N/A	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	250 RPM	250 RPM	250 RPM	250 RPM	
30.12	Maximum speed	<refer to spec.>	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 11.Parameter settings for ABB ACH480-ACH580-ACS180 converters with Lafert PM motors

Parameters	Field names	Motor types				Comments
		Lafert 8p, 5.5 kW, 926528-0	Lafert 8p, 7.5 kW, 926529-0			
99.03	Motor type	[1] Permanent magnet motor	[1] Permanent magnet motor			Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector			Use Vector mode with PM motors
99.06	Motor nominal current	11.4 A	15.1 A			Full-load current (FLC)
99.07	Motor nominal voltage	297 V	310.5 V			Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		297	310.5			Back EMF calc check
	Back EMF 1000 RPM	66	69			
	Nominal mult.	4.5	4.5			
99.08	Motor nominal frequency	50 Hz	50 Hz			Default is 50 Hz. Check nameplate. Frequency = $\text{RPM} \times \text{poles} / 120$ if no frequency.
99.09	Motor nominal speed	4500 RPM	4500 RPM			Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	5.5 kW	7.5 kW			Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill			When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic			Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast			Default = Coast. Application specific selection. Coast may not be suitable is using mechanical brake.
21.13	Auto phasing mode	N/A	N/A			Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s			Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s			Avoid low ramp times
30.11	Minimum speed	250 RPM	250 RPM			
30.12	Maximum speed	<refer to spec.>	<refer to spec.>			Refer to fan nameplate or Air-Box tech. spec.

Table 12.Parameter settings for ABB ACH480-ACH580-ACS180 converters with Lafert PM motors

Parameters	Field names	Motor types				Comments
		Nidec 4p, 11 kW, 927858-0	Nidec 4p, 15 kW, 927857-0	Nidec 4p, 18.5 kW, 927859-0	Nidec 4p, 18.5 kW, 927869-0	
99.03	Motor type	[3] PMaSynRM	[3] PMaSynRM	[3] PMaSynRM	[3] PMaSynRM	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	21 A	28 A	36 A	36 A	Full-load current (FLC)
99.07	Motor nominal voltage	108 V	118.5 V	109.5 V	118.05 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		108	118.5	109.5	118.05	Back EMF calc check
	Back EMF 1000 RPM	72	79	73	78.7	
	Nominal mult.	1.5	1.5	1.5	1.5	
99.08	Motor nominal frequency	50 Hz	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	1500 RPM	1500 RPM	1500 RPM	1500 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	11 kW	15 kW	18.5 kW	18.5 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable if using mechanical brake.
21.13	Auto phasing mode	[5] Turning 2	[5] Turning 2	[5] Turning 2	[5] Turning 2	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	300 RPM	300 RPM	300 RPM	300 RPM	
30.12	Maximum speed	<refer to spec.>	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 13.Parameter settings for ABB ACH480-ACH580-ACS180 converters with Nidec PM motors

Parameters	Field names	Motor types				Comments
		Nidec 4p, 22 kW, 927860-0	Nidec 4p, 30 kW, 927861-0	Nidec 4p, 32 kW, 927868-0	Nidec 4p, 35 kW, 927872-0	
99.03	Motor type	[3] PMaSynRM	[3] PMaSynRM	[3] PMaSynRM	[3] PMaSynRM	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	42 A	57 A	61 A	69 A	Full-load current (FLC)
99.07	Motor nominal voltage	108 V	108 V	108 V	100.5 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		108	108	108	100.5	Back EMF calc check
	Back EMF 1000 RPM	72	72	36	67	
	Nominal mult.	1.5	1.5	3	1.5	
99.08	Motor nominal frequency	50 Hz	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	1500 RPM	1500 RPM	3000 RPM	1500 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	22 kW	30 kW	32 kW	35 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable if using mechanical brake.
21.13	Auto phasing mode	[5] Turning 2	[5] Turning 2	[5] Turning 2	[5] Turning 2	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	300 RPM	300 RPM	300 RPM	300 RPM	
30.12	Maximum speed	<refer to spec.>	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 14.Parameter settings for ABB ACH480-ACH580-ACS180 converters with Nidec PM motors

Parameters	Field names	Motor types				Comments
		Nidec 4p, 37 kW, 927862-0	Nidec 4p, 37 kW, 927870-0	Nidec 4p, 41 kW, 927874-0	Nidec 4p, 45 kW, 927863-0	
99.03	Motor type	[3] PMaSynRM	[3] PMaSynRM	[3] PMaSynRM	[3] PMaSynRM	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	70 A	70 A	81 A	82 A	Full-load current (FLC)
99.07	Motor nominal voltage	108 V	117 V	99 V	115.5 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		108	117	99	115.5	Back EMF calc check
	Back EMF 1000 RPM	72	39	66	77	
	Nominal mult.	1.5	3	1.5	1.5	
99.08	Motor nominal frequency	50 Hz	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	1500 RPM	3000 RPM	1500 RPM	1500 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	37 kW	37 kW	41 kW	45 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable if using mechanical brake.
21.13	Auto phasing mode	[5] Turning 2	[5] Turning 2	[5] Turning 2	[5] Turning 2	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	300 RPM	300 RPM	300 RPM	300 RPM	
30.12	Maximum speed	<refer to spec.>	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 15.Parameter settings for ABB ACH480-ACH580-ACS180 converters with Nidec PM motors

Parameters	Field names	Motor types				Comments
		Nidec 4p, 55 kW, 927864-0	Nidec 4p, 64 kW, 927871-0	Nidec 4p, 75 kW, 927865-0	Nidec 4p, 75 kW, 927873-0	
99.03	Motor type	[3] PMaSynRM	[3] PMaSynRM	[3] PMaSynRM	[3] PMaSynRM	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	99 A	126 A	134 A	148 A	Full-load current (FLC)
99.07	Motor nominal voltage	115.5 V	99 V	123 V	99 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = 3x70 = 210 V
		115.5	99	123	99	Back EMF calc check
	Back EMF 1000 RPM	77	33	82	33	
	Nominal mult.	1.5	3	1.5	3	
99.08	Motor nominal frequency	50 Hz	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	1500 RPM	3000 RPM	1500 RPM	3000 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	55 kW	64 kW	75 kW	75 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable is using mechanical brake.
21.13	Auto phasing mode	[5] Turning 2	[5] Turning 2	[5] Turning 2	[5] Turning 2	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	300 RPM	300 RPM	300 RPM	300 RPM	
30.12	Maximum speed	<refer to spec.>	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 16.Parameter settings for ABB ACH480-ACH580-ACS180 converters with Nidec PM motors

Parameters	Field names	Motor types				Comments
		Nidec 4p, 90 kW, 927866-0	Nidec 4p, 94 kW, 927876-0	Nidec 4p, 117 kW, 927878-0	Nidec 4p, 172 kW, 927875-0	
99.03	Motor type	[3] PMaSynRM	[3] PMaSynRM	[3] PMaSynRM	[3] PMaSynRM	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	163 A	183 A	218 A	327 A	Full-load current (FLC)
99.07	Motor nominal voltage	120 V	100.5 V	105 V	108 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		120	100.5	105	108	Back EMF calc check
	Back EMF 1000 RPM	80	67	70	36	
	Nominal mult.	1.5	1.5	1.5	3	
99.08	Motor nominal frequency	50 Hz	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	1500 RPM	1500 RPM	1500 RPM	3000 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	90 kW	94 kW	117 kW	172 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable if using mechanical brake.
21.13	Auto phasing mode	[5] Turning 2	[5] Turning 2	[5] Turning 2	[5] Turning 2	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	300 RPM	300 RPM	300 RPM	300 RPM	
30.12	Maximum speed	<refer to spec.>	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 17.Parameter settings for ABB ACH480-ACH580-ACS180 converters with Nidec PM motors

Parameters	Field names	Motor types			Comments
		Nidec 4p, 206 kW, 927877-0	Nidec 4p, 220 kW, 927879-0	Nidec 4p, 315 kW, 927880-0	
99.03	Motor type	[3] PMaSynRM	[3] PMaSynRM	[3] PMaSynRM	Select motor type
99.04	Motor control mode	[0] Vector	[0] Vector	[0] Vector	Use Vector mode with PM motors
99.06	Motor nominal current	382 A	403 A	643 A	Full-load current (FLC)
99.07	Motor nominal voltage	120 V	100.5 V	105 V	Use back EMF from nameplate. For voltage per RPM, e.g. 70 per 1000 RPM then the voltage for nominal speed of 3000 RPM = $3 \times 70 = 210$ V
		114	117	114	Back EMF calc check
	Back EMF 1000 RPM	38	78	38	
	Nominal mult.	3	1.5	3	
99.08	Motor nominal frequency	50 Hz	50 Hz	50 Hz	Default is 50 Hz. Check nameplate. Frequency = RPM x poles / 120 if no frequency.
99.09	Motor nominal speed	3000 RPM	1500 RPM	3000 RPM	Enter synchronous speed of motor from nameplate
99.10	Motor nominal power	206 kW	220 kW	315 kW	Motor power rating from nameplate
99.13	ID Run requested	Standstill	Standstill	Standstill	When 99.04 is set to Vector 99.13 is automatically set to standstill and initiates ID run message. Press hide and continue to enter changes.
21.01	Start mode	Automatic	Automatic	Automatic	Default. Automatic guarantees optimal start in most cases.
21.03	Stop mode	Coast	Coast	Coast	Default = Coast. Application specific selection. Coast may not be suitable if using mechanical brake.
21.13	Auto phasing mode	[5] Turning 2	[5] Turning 2	[5] Turning 2	Only applies when 99.03 is set to [3] PMaSYNrm. Rotates the motor to align the angle to a known position. This mode gives the most accurate auto-phasing result. Notice: This mode rotates motor.
23.12	Acceleration time 1	30 s	30 s	30 s	Avoid low ramp times
23.13	Deceleration time 1	30 s	30 s	30 s	Avoid low ramp times
30.11	Minimum speed	300 RPM	300 RPM	300 RPM	
30.12	Maximum speed	<refer to spec.>	<refer to spec.>	<refer to spec.>	Refer to fan nameplate or Air-Box tech. spec.

Table 18.Parameter settings for ABB ACH480-ACH580-ACS180 converters with Nidec PM motors

3. Reference documentation

- ACS180 drives - Quick installation and start-up guide
Publication no. 3AXD50000510344 Rev D EN 2026-03-31
- ACH480 drives - Quick installation and start-up guide
Publication no. 3AXD50000247141 Rev D EN 2024-04-25
- ACH580-01 drives - Quick installation and start-up guide for global IEC product types
Publication no. 3AXD50001324124 Rev B MUL 2025-06-24
- NOVENCO NovAx - Axial fans ACN-ACW-ARN - Installation and maintenance
Document item no. 916330-0
- NOVENCO ZerAx - Axial fans AZL-AZN-AZW - Installation and maintenance
Document item no. 922950-0

Appendices

Appendix - A. The ACS180 display

How to navigate to the parameter list

1. Make sure the display shows main screen. If necessary, push Back until the screen displays.



Figure 1. Main screen

2. Push OK to select Menu .
3. Navigate to Settings  with the Up and Down arrows. Push OK to select.



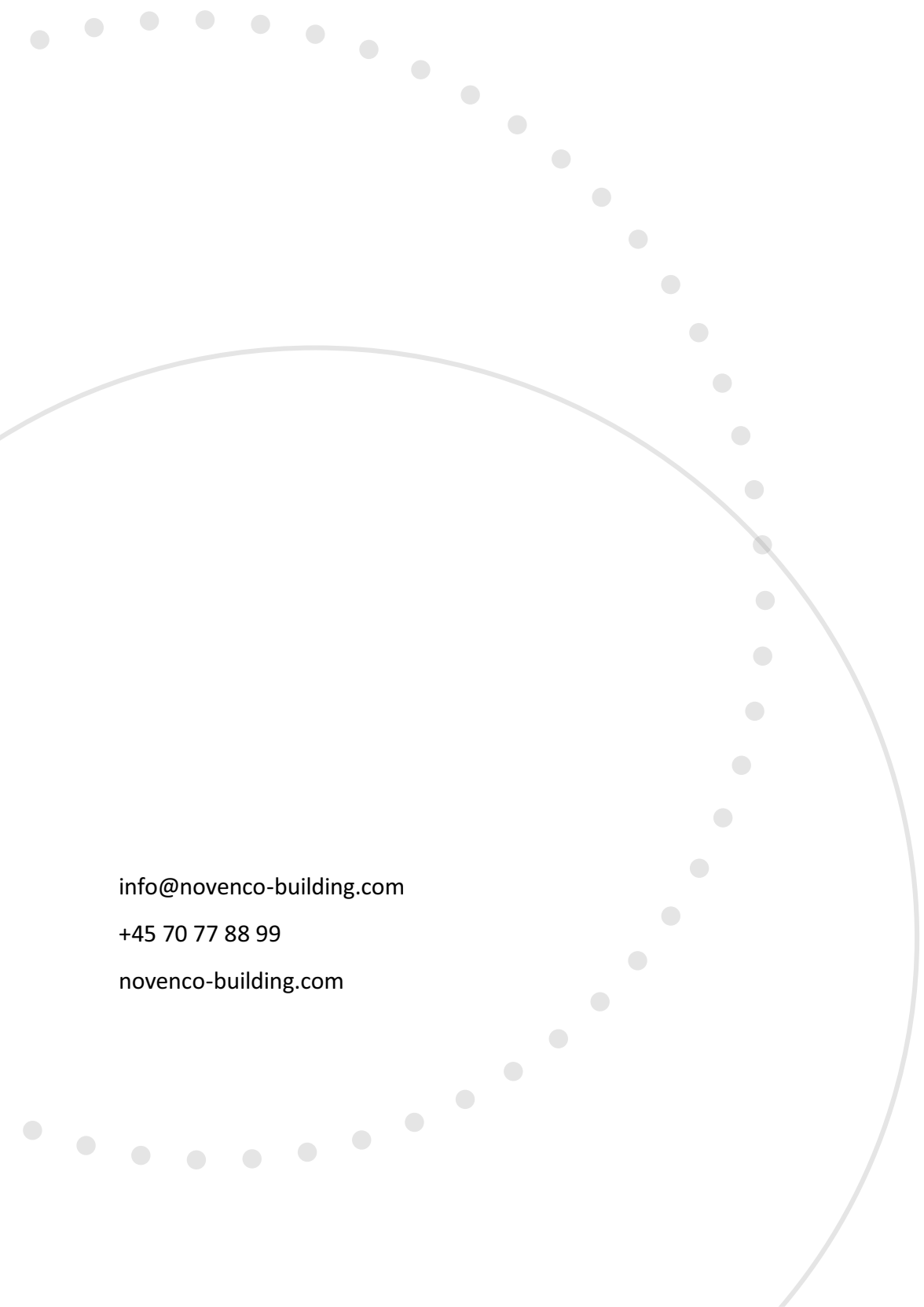
Figure 2. Select Settings

4. Navigate to Parameter list  with the Up and Down arrows. Push OK to select.



Figure 3. Parameter list

Please note that the parameters are unnamed and are referred to using numbers.



info@novenco-building.com
+45 70 77 88 99
novenco-building.com