MADE IN SWEDEN

Interference free future

NFO Drives unique frequency inverter

Simple

Silent

Safe

NFO DRIVES

SINCE 1996

Pure sine wave

- Pure sine wave makes a big difference for you

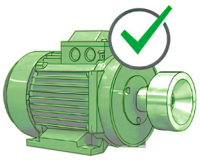
The advantages of NFO Sinus technology:

Cost effective and simple electrical installation

Installed with unshielded cable.
No special requirements for the electrical installer.
Plug and play.

Possibility of free position

NFO Sinus can be placed at an unlimited distance from the electric motor.



Healthy motor

No bearing currents – no bearing damage.

Interference free

NFO's frequency inverter is interference-free, which means major benefits primarily for the end customer.

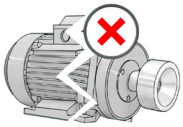
Earth fault braker can be used

NFO Sinus does not generate ground currents (max. 2 mA).
NFO Sinus can be used wherever there is a requirement for earth fault breakers/monitoring
(e.g. hospitals, farms)

Compared with PWM technology:

Expensive and complicated electrial installation

Fixed position



Bearing failure

Interferences

Impaired personal and fire safety

Our customers

- NFO is used in a wide range of industries

NFO's product range suits all types of customers – from those who need a single frequency inverter to those requiring large, advanced installations. The reason professional installers have used our frequency inverter for more than 30 years is that they value the only completely interference-free frequency inverter on the market.

Thanks to NFO's unique advantages, it can also be used in industries with special requirements, such as the food industry, healthcare, fountain and water feature systems, and the defense industry.

Our product range

1.5 kW

2.2 kW

5.5 kW

11 kW

18.5 kW

NFO Sinus Optimal

- The optimal motor control

The NFO Sinus frequency inverter allows you to control the speed of electric motors without generating electromagnetic interference, which in turn offers a range of unique benefits. Thanks to the sine wave output voltage, the inverter is interference-free in itself.

Simple installation

Silent operation

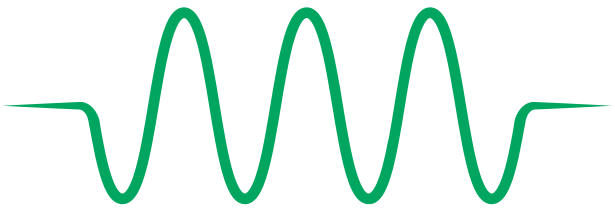
Safe technology

SIMPLE

The installation is simple and cost-effective in that the installer does not need shielded cables, EMC filters or other EMC-classified installation accessories. When undertaking renovations or energy efficiency projects, it's possible to re-use existing non-shielded cables, which makes the installation work quick and easy. There is no limit of cable length between the NFO Sinus and the motor, except for the resistance of the cable. The NFO Sinus can be installed where it's suitable depending on the application, even if the distance to the motor is several hundred meters. The unique Sinus technology provides cost-efficient and flexible solutions in all environments.

SILENT

NFO Sinus is interference-free and will therefore not cause any electromagnetic interference with other technical equipment in its surroundings. The NFO Sinus meets the most stringent reuirements according to the EMC directive 2014/30/EU, without filters and without shielded cables, and can be used in all sorts of applications, from industrial to residential areas. With NFO Sinus you also avoid all annoying interference and switching noises in the motor, which results in a quieter environment.



SAFE

NFO Sinus does not generate any bearing currents. The motor therefore has a longer lifespan. No earth leakage currents are generated, which means that residual current devices for both personal safety and fire prevention can be used. This provides a high level of electrical safety.

HIGH PRECISION

The motor speed is very precisely controlled, with full torque right from stand-still as well as at low speed, regardless of chosen control mode: Speed, frequency or process control. Furthermore, the inverter has an energy-save function that allows you to save even more energy when running with a low load on the motor, e.g. fans, which at times run at low speed.

Pioneering the industry since 1996

NFO was the first to deliver interference-free motor control with a pure sine wave

TECHNICAL DATA 1.5 kW — NFO Sinus Optimal 1 phase 230V

NFO Sinus Optimal 1.5kW is optimized for AC induction motors with a rated current of 1.0 to 5.8 A (max 7.3 A)

Continuous Rating (A)	1.0 - 5.8
Maximum Rating (A)	7.3
Protection Class	IP55
Measurements HxDxW (mm)	390x190x160
Weight (kg)	5.8
Part number	NFO 4A4E3580D

TECHNICAL DATA 2.2 kW — NFO Sinus Optimal 1.0 - 4.9 A

NFO Sinus Optimal 2.2kW is optimized for AC induction motors with a rated current of 1.0 to 4.9 A (max 5.8 A)

Continuous Rating (A)	1.0 - 4.9
Maximum Rating (A)	5.8
Protection Class	IP55
Measurements HxDxW (mm)	390x190x160
Weight (kg)	7.0
Part number	NFO 4A4D3490D

TECHNICAL DATA 5.5 — NFO Sinus Optimal 3.5 - 11 A

NFO Sinus Optimal 5.5 kW is optimized for AC induction motors with a rated current of 3.5 to 11 A (max 13.2 A)

Continuous Rating (A)	3.5 - 11
Maximum Rating (A)	13.3
Protection Class	IP55
Measurements HxDxW (mm)	390x190x200
Weight (kg)	9.5
Part number	NFO 4B4D3111D

TECHNICAL DATA 11 — NFO Sinus Optimal 6.5 - 22 A

NFO Sinus Optimal 11 kW is optimized for AC induction motors with a rated current of 6.5 to 22 A (max 26.4 A)

Continuous Rating (A)	6.5 - 22
Maximum Rating (A)	26.4
Protection Class	IP55
Measurements HxDxW (mm)	485x225x305
Weight (kg)	26
Part number	NFO 4C4D3221D

TECHNICAL DATA 18.5 — NFO Sinus Optimal 14 - 35 A

NFO Sinus Optimal 18.5 kW is optimized for AC induction motors with a rated current of 14 to 35 A (max 42 A)

Continuous Rating (A)	14 - 35
Maximum Rating (A)	42
Protection Class	IP55
Measurements HxDxW (mm)	565x225x305
Weight (kg)	31
Part number	NFO 4D4D3351D

GENERAL DATA FOR 1.5 kW to 18.5 kW NFO Sinus Optimal

2.2 to 18.5 kW	Voltage (V)	Frequency (Hz)
Input:	3x380-480 V ±10 %	50/60 Hz ± 10 %
Output:	3x0 – 380-480 V	0-150 Hz
Output voltage wave form:	Sinusoidal	
Operating mode:	4-quadrant	

1.5 kW	Voltage (V)	Frequency (Hz)
Input:	1x230-240 V ±10 %	50/60 Hz ±10 %
Output:	3x0 – 240 V	0-150 Hz
Output voltage wave form:	Sinusoidal	
Operating mode:	4-quadrant	

Configurable control signals:		
2 pcs Analog input	0-10 V, 2-10 V, ±10 V, 0-20 mA, 4-20 mA, ±20 mA, Potentiometer	
2 pcs Analog output	0-10 V, 2-10 V, ±10 V, 0-20 mA, 4-20 mA, ±20 mA	
Selectable from terminal	7 fixed setpoints	
Acceleration time:	0.5-100 s	
Retardation time:	0.5-100 s	
Relay outputs:	Common alarm / Programmable function (Potential free contact max 1A/50 VDC)	
	Run indication / Programmable function (Potential free contact max 1A/50 VDC)	
Voltage output:	24 V supply to external sensor	
Control modes:	Frequency control	0-150 Hz
	Speed control	0-9000 rpm
	Process control	PI controller with feedback
Local mode:	Forward, Reverse, Stop	
Motor protection:	Thermistor input	PTC or Klixon
	Power guard	Overload protection
Personal safety:	Safe Torque Off functionality using dual channel wiring for emergency stop switch	
Communication:	Modbus RTU / Modbus ASCII / NFO Classic protocol / USB / RS-485 (native)	
	PROFIBUS / PROFINET / Modbus TCP (using Anybus CompactCom module)	
Software:	NFO Sinus Manager, free download from www.nfodrives.se	
Energysave function:	Optmizing magnetizing current of motors at low load	
Efficiency class CDM:	IE2 according to Ecodesign Regulation 2019/1781	
Environment:	Ambient temp -10 - +45°C	
	Storage temp -20 - +60°C	
	Relative Humidity 0 - 90% non-condensing.	
Earth current:	< 2 mA. RCD's for both personal and fire protection can be used	
EMC:	According to EMC Directive 2014/30/EU	
	Certified to be used without shielded cables and filters	
Standards:	EMC Emission	EN 55011:2016, EN 55011/A1:2017,
		EN 61000-3-3:2013, EN 61000-3-2:2019, EN 61000-3-12:2011
	EMC Immunity	EN 61000-6-2:2005, EN 61000-4-2, -3, -4, -5, -6, -11
	LVD	EN 61800-5-1:2017, EN 61800-5-1/A1:2017, EN IEC 61800-5-1:2023
	Ecodesign	EN 61800-9-2:2017

Option	
Brake resistors/chopper:	For dimensioning of braking resistors, see the user and installation manual

For more information: See NFO Drives Operating and installation manual

Version: 2619

Upgrading the future

At NFO Drives, we're not just about the present; we're visionaries. Our mission is to shape tomorrow's world today, pioneering innovative solutions that redefine industries and push boundaries.

Our goal is to constantly evolve, both in our technical expertise and in staying at the forefront of developing next generation products.

Follow us at LinkedIn

Read more about us

NFO DRIVES

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