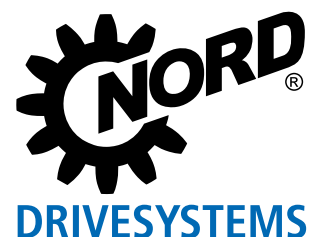




Frequency inverter for horizontal conveyor applications

NORDAC *ON* and *ON+* SK 300P series



Top class inverter technology

NORDAC ON, SK 300P series



[NORDAC ON](#)

The NORDAC ON is a compact, smart frequency inverter for decentralised use that has been specially developed to meet the special requirements of horizontal conveyor technology, as well as for the interaction with the new IE5+ synchronous motor (NORDAC ON+).

Focused

The NORDAC ON is optimised for the common range of functions in horizontal conveyor technology. The following functions are included as standard:

- ▶ Integration of sensors via digital inputs
- ▶ If required, an integrated brake chopper dissipates regenerative energy to an optional braking resistor
- ▶ Brake management for optimum control of an electromagnetic holding brake for wear-free brake actuation
- ▶ Quick and simple diagnostics via easily visible LED indicators
- ▶ The Safe Torque Off (STO) function can be optionally integrated into the frequency inverter and is controlled via two safe inputs
- ▶ Other functional safety-related functions, for example SS2, SLS, SDI, SSM, SOS, SMS or SSR, can also be integrated. Communication is then possible via PNS or FSoE. - [in preparation](#)

Compact

The power range from 0.37 to 3.7 kW (NORDAC ON/ON+) or to 1.5 kW (NORDAC ON PURE) is covered by three sizes. Power-size assignments optimised this way allow for installations even in a very small space.

NORDAC ON was designed for use with asynchronous motors, whereas NORDAC ON+ is intended for combination with synchronous motors and supplements the NORD high-efficiency portfolio around the new IE5+ motor generation.

In case the frequency inverter should or could not be mounted on the motor, it can alternatively be mounted on the wall to connect the converter close to the drive.



NORDAC ON PURE

PURE (in preparation)

NORDAC ON PURE extends the application area of the compact frequency inverter to applications in the food and beverage (F&B) industry.

Therefore, the device's housing has been specifically adjusted to the requirements in the F&B sector. Thanks to the **NXD tupH** surface treatment, the protection class achieves IP69, and all device openings have been reduced to a minimum.

Apart from the diagnostic opening, there are only robust M23 circular connectors for the hybrid connection of the mains/control voltage and the Ethernet connection.

The NORDAC ON PURE is intended for mounting on the equally F&B-enabled NORD IE5+ smooth motor (without ventilation) or alternatively as wall mounting option. Special hygienic cables are available for the electrical connection.



Digitalisation

As with all NORD frequency inverters, the new member of the NORDAC family is equipped with a powerful PLC for functions close to the drive. It can process the data from connected sensors and actuators, autonomously initiate control sequences and communicate drive and application data to the control centre, networked components or to cloud storage.

For this purpose, both frequency inverter versions have an integrated Ethernet interface and thus are ideally equipped for integration into modern automation systems. Whether for ProfiNet, EtherNet/IP or EtherCAT – the required protocol can be easily set via parameters.

100% Plug-and-play

All connections are pluggable and ensure quick, easy, error-minimised commissioning and maintenance on site. The 24 V DC supply for control and communication is also integrated in the 3-phase 400 V supply and is realised via a 6-pole plug connector. The daisy chain connector can be used to supply several drives in series in order to optimise the required cable length.

Robust

The frequency inverter housing is made entirely from aluminium and with a high IP protection class (up to IP66) it is thus also suitable for harsh environmental conditions.

In addition, the NORDAC *ON* / *ON+* can be operated in a temperature range from -30 to +40°C and can therefore also be used in deep-freeze applications.







NORDAC *ON*



NORDAC *ON*
Wandmontage-Variante

Standards and approvals

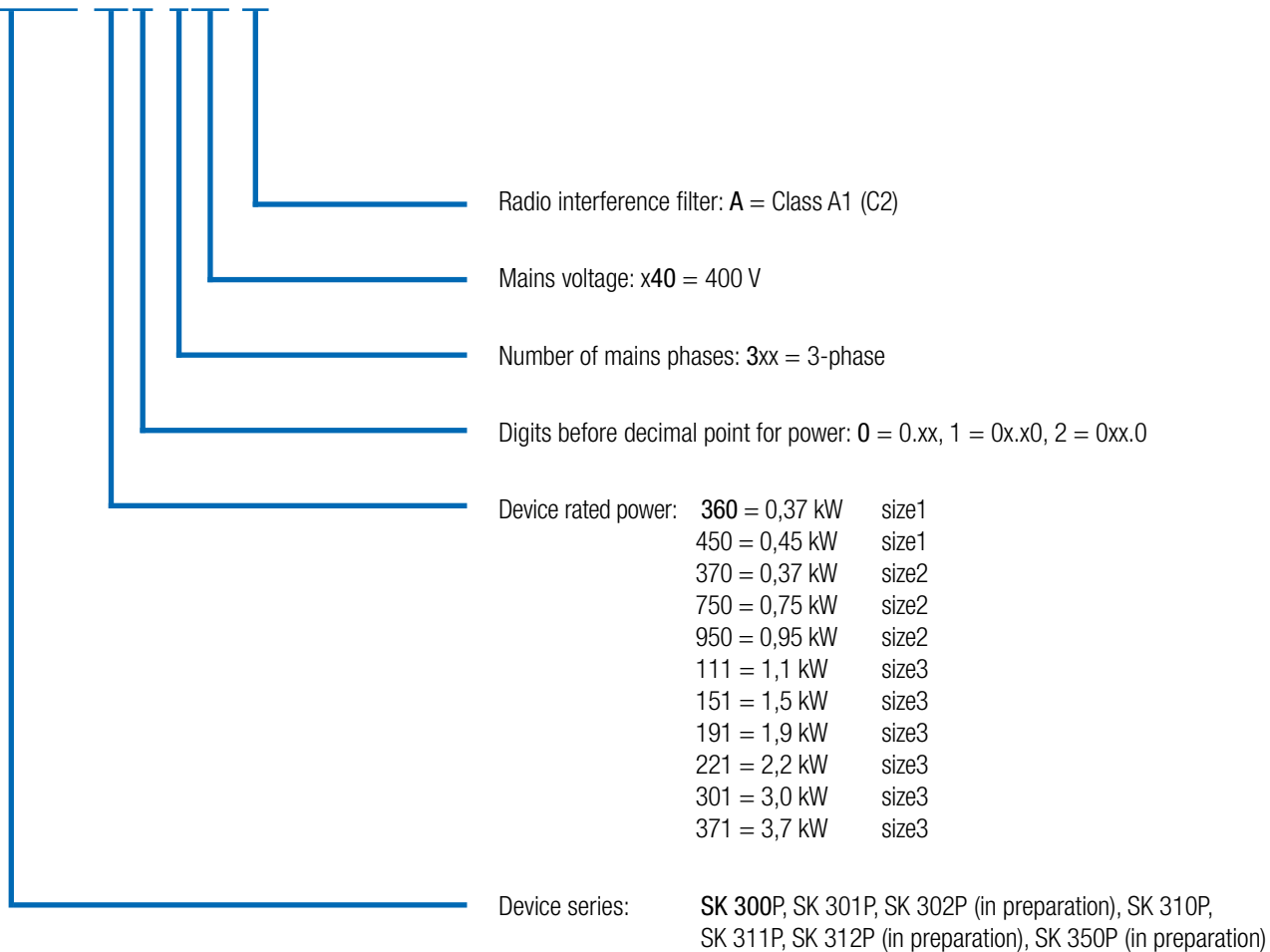
All devices across the entire series comply with the standards and directives listed below.

Approval	Directive	Applied standards	Certificates	Label
CE (European Union)	Low Voltage Directive 2014/35/EU	EN 61800-5-1 EN 60529	C310001	
	EMC 2014/30/EU	EN 61800-3 EN 63000		
	RoHS 2011/65/EU	EN 61800-9-1 EN 61800-9-2		
	Delegated directive (EU) 2015/863			
	Ecodesign 2009/125/EG			
	Regulation (EU) Ecodesign 2019/1781			
UL (USA)		UL 61800-5-1	E171342	
CSA (Kanada)		C22.2 No.274-13	E171342	
RCM (Australien)	F2018L00028	EN 61800-3	C310001	
EAC (Eurasien)	TR CU 004/2011, TR CU 020/2011	IEC 61800-5-1 IEC 61800-3	in preparation	
UkrSEPRO (Ukraine)		EN 61800-5-1 EN 60529 EN 61800-3 EN 63000 EN 60947-1 EN 60947-4 EN 61558-1 EN 50581	C311900	
UKCA (United Kingdom)		EN 61800-5-1 EN 60529 EN 61800-3 EN 63000 EN 61800-9-1 EN 61800-9-2	C352000	

Type code

Frequency inverter

SK 300P-360-340-A



NORDAC ON, SK 300P series all versions at a glance

	NORDAC ON SK 30xP	NORDAC ON SK 30xP	NORDAC ON+ SK 31xP	NORDAC ON PURE SK 350P
Power	0.37 - 0.45 kW	0.37 - 3.7 kW	0.37 - 3.7 kW	0.37 - 1.5 kW
Size	1	2 - 3	2 - 3	2 - 3
Sensorless current vector control (ISD control)	●	●	●	●
Asynchronous motor operation (closed-loop and open-loop)	●	●	● ²	● ²
Synchronous motor operation (PMSM) (closed-loop and control without encoder)	○	○	●	●
Mountable on IE3 motor	●	●	○	○
Mountable on IE5+ motor	○	○	●	●
RS485/RS232 diagnostic interface via RJ12	●	●	●	●
4 switchable parameter sets	●	●	●	●
All normal drive functions	●	●	●	●
Parameters pre-set with standard values	●	●	●	●
Stator resistance measurement	●	●	●	●
Energy-saving function, optimised efficiency in partial load operation	●	●	●	●
Class C2 line filter, motor-mounted or up to 5 m motor cable for wall-mounting	●	●	●	●
Monitoring functions	●	●	●	●
Load monitor	●	●	●	●
POSICON	○	○	●	●
PLC functionality	●	●	●	●
Ethernet communication: EtherCAT, Ethernet IP, ProfiNet IO	●	●	●	●
External 24 V DC power supply for the control board	●	●	●	●
Brake management for mechanical Holding brake	○	●	●	●
Brake chopper (braking resistor optional)	○	●	●	●
"Safe Torque Off" and "Safe Stop" (STO, SS1-t) functions	○	●	●	○
Internal braking resistors	○	●	●	●

¹ With integrated optional module SK CU6-STO, connection via M12 plug connectors

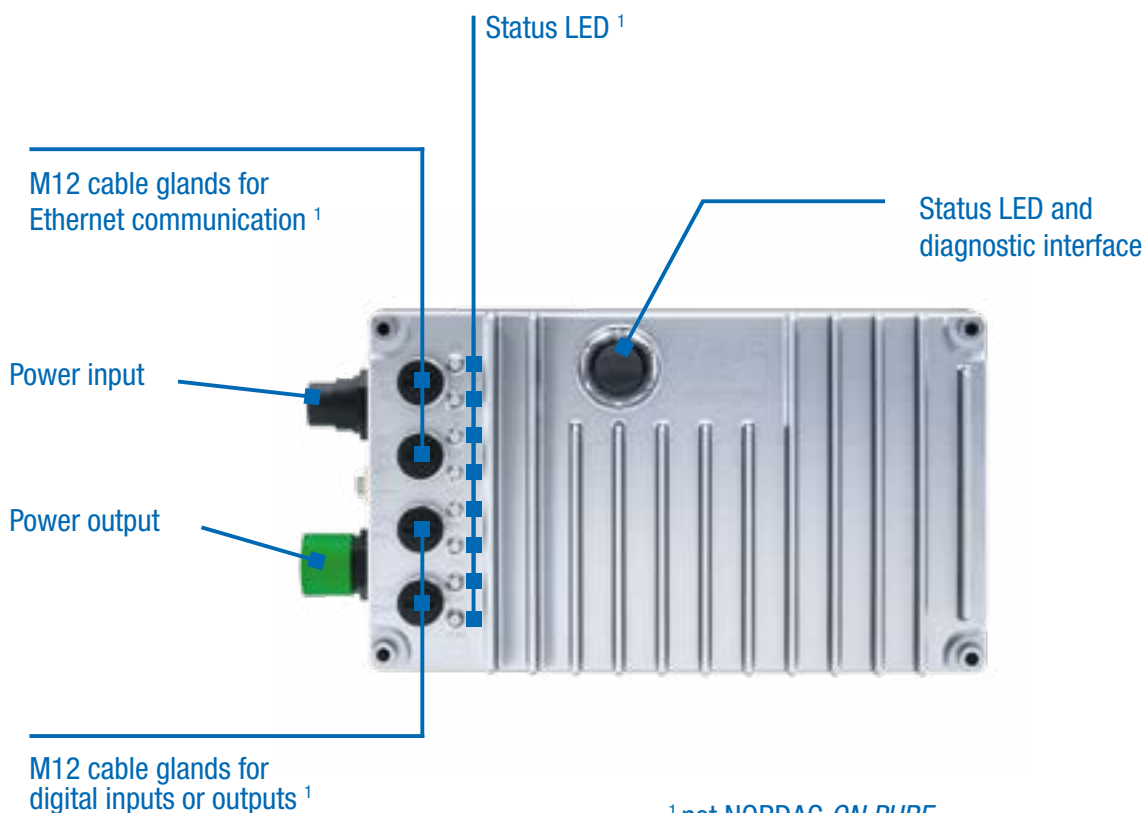
² Wall mounting only

- Available as standard
- Optional
- Not available

	NORDAC <i>ON</i> SK 30xP	NORDAC <i>ON</i> SK 30xP	NORDAC <i>ON+</i> SK 31xP	NORDAC <i>ON PURE</i> SK 350P	
Power	0.37 - 0.45 kW	0.37 - 3.7 kW	0.37 - 3.7 kW	0.37 - 1.5 kW	
Size	1	2 - 3	2 - 3	2 - 3	
Interfaces and connections	Mountable on IE3 motor	●	●	○	
	Mountable on IE5+ motor	○	○	●	
	DIN via M12 plug connector	4-2 ¹	4-4 ² -2 ²	4-4 ² -2 ²	○
	DOUT via M12 plug connector	0-2 ¹	2-0 ² -2 ²	2-0 ² -2 ²	○
	Mains input (3-phase 400 V) with integrated 24 V DC via plug connector	●	●	●	●
	Mains output / daisy chain (3~ 400 V) with integrated 24 V DC via plug connector	●	●	●	●
	Thermostats (PTC)	●	●	●	●
	RS485 encoder interface	○	○	●	●
	RS232 diagnostic interface				

¹ 2 digital IOs optionally parameterisable as DIN or DOUT

² Version SK 3x1P and higher has 4 DINs, 2 of which are optionally parameterisable as DIN or DOUT.



¹ not NORDAC *ON PURE*

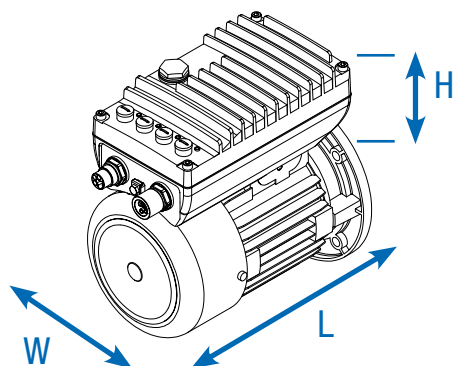
Frequency inverter NORDAC *ON*

3~400 ... 480 V

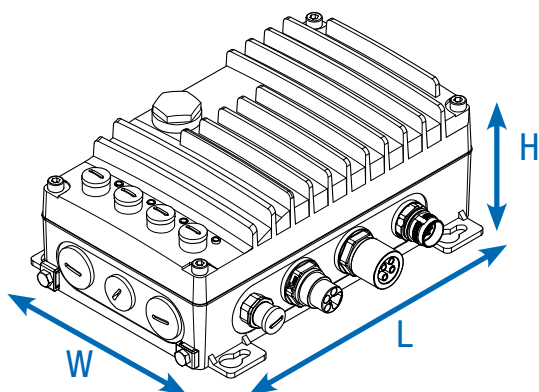
Output frequency	0.0 ... 400.0 Hz	Protection class	IP55 , optional IP66 NORDAC <i>ON PURE</i> : only IP69 NEMA type 1 (higher NEMA classifications on request)
Pulse frequency	3.0 ... 16.0 kHz	Regulation and control	Sensorless current vector control (ISD), linear V/f characteristic curve
Typical overload capacity	150% for 60 s 200% for 5 s 250% for 1 s only asynchronous motors	Motor temperature monitoring	I ² t motor PTC / bimetallic switch
Frequency inverter efficiency	approx. 95%	Leakage current	< 30 mA
Ambient temperature	-30°C ... +40°C (S1) -30°C ... +50°C (S3, 70% ED)		

Frequency inverter	Nominal motor power		Nominal output current rms [A]	Mains voltage	Output voltage	Size
	400 V [kW]	480 V [hp]				
SK 300P-360-340-A	0,37	1/2	1,2	3~ 400 ... 480 V, -20 % / +10 %, 47 ... 63 Hz	3~ 0 up to mains voltage	1
SK 3xxP-370-340-A	0,37	1/2	1,2			2
SK 300P-450-340-A	0,45	3/5	1,5			1
SK 3xxP-750-340-A	0,75	1	2,2			2
SK 3xxP-950-340-A	0,95	1 1/4	2,7			2
SK 3xxP-111-340-A	1,1	1 1/2	3,0			3
SK 3xxP-151-340-A	1,5	2	3,8			3
SK 30xP-191-340-A	1,9	2 1/2	4,3			3
SK 3xxP-221-340-A	2,2	3	5,2			3
SK 3xxP-301-340-A	3,0	4	7,2			3
SK 31xP-371-340-A	3,7	5	8,1	3		





Frequency inverter	Motor	Weight [kg]	Dimensions for motor mounting excluding motor L x W x H [mm]	Size	
SK 30xP	-360-340-A bis -450-340-A	IE3 BG 63 - 71	1,5	230 x 121 x 79	1
	-370-340-A bis -950-340-A	IE3 BG 63 - 80	1,9	260 x 130 x 83	2
	-111-340-A bis -151-340-A	IE3 BG 80 - 90	3,3	296 x 160 x 104	3
	-191-340-A bis -371-340-A	IE3 BG 90 -100	3,5	296 x 160 x 123	3
SK 31xP	-370-340-A bis -950-340-A	IE5+ BG 71	1,9	251 x 130 x 97	2
	-111-340-A bis -151-340-A	IE5+ BG 90	3,4	285 x 160 x 124	3
	-221-340-A bis -371-340-A	IE5+ BG 90	3,6	304 x 160 x 144	3
SK 35xP	-370-340-A bis -750-340-A	IE5+ BG 71		277 x 133 x 122	2
	-111-340-A bis -151-340-A	IE5+ BG 90		307 x 160 x 146	3



Frequency inverter	Weight [kg]	Dimensions for wall mounting L x W x H [mm]	Size	
-360-340-A bis -450-340-A	1,7	211 x 161 x 84	1	
SK 30xP/ SK 31xP	-370-340-A bis -950-340-A	2,1	244 x 171 x 99	2
SK 31xP	-111-340-A bis -151-340-A	3,5	272 x 201 x 117	3
	-191-340-A bis -371-340-A	3,7	272 x 201 x 137	3
SK 35xP	-370-340-A bis -750-340-A		260 x 184 x 111	2
	-111-340-A bis -151-340-A		290 x 214 x 134	3

NORDAC ON SK 30xP

Power 0,37 – 3,2 kW
 Mains voltage: 3 ~ 400 V
 Supply voltage: 24VDC extern
 Typical overload capacity: 150 % for 60 s, 200 % for 5 s,
 250 % for 1 s
 Ambient temperature: -30...+40° C (S1)
 Protection class: IP55/IP66



Motor	Size 1	Size 2	Size 3
63 LP/4 – 2.600 rpm	1.2 Nm – 0.31 kW	1.2 Nm – 0.31 kW ¹	
71 SP/4 – 2.600 rpm	1.6 Nm – 0.43 kW	1.6 Nm – 0.43 kW ¹	
71 LP/4 – 2.600 rpm		2.4 Nm – 0.65 kW	
80 SP/4 – 2.600 rpm		3.6 Nm – 0.95 kW	
80 LP/4 – 2.600 rpm			4.9 Nm – 1.3 kW
90 SP/4 – 2.600 rpm			7.1 Nm – 2.2 kW
90 LP/4 – 2.600 rpm			9.8 Nm – 2.6 kW
100 LP/4 – 2.600 rpm			11.8 Nm – 3.2 kW

¹Diese Frequenzumrichter–Motor-Kombinationen sind möglich, wenn Funktionen wie Bremsenansteuerung oder der Einbau der SK CU6-STO / interner Bremswiderstand nötig ist.

NORDAC ON PURE SK 35xP

Power: up to 1,5 kW
 Mains voltage: 3 ~ 400 V
 Supply voltage: 24VDC extern
 Typical overload capacity: 150 % for 60 s, 200 % for 5 s
 Ambient temperature: -30...+40° C (S1)
 Protection class: IP69K



Motor	Size 2	Size 3
IE5+ SK 71 N1/8 – 2.100 rpm	1.6 Nm – 0.35 kW	
IE5+ SK 71 N2/8 – 2.100 rpm	3.2 Nm – 0.70 kW	
IE5+ SK 90 N1/8 – 2.100 rpm		5.0 Nm – 1.10 kW
IE5+ SK 90 N2/8 – 2.100 rpm		6.8 Nm – 1.50 kW

NORDAC ON+ SK 31xP

Power: 0,37 – 3,7 kW
 Mains voltage: 3 ~ 400 V
 Supply voltage: 24VDC extern
 Typical overload capacity: 150 % for 60 s, 200 % for 5 s
 Ambient temperature: -30...+40° C (S1)
 Protection class: IP55/IP66



Motor non-ventilated	Size 2	Size3
IE5+ SK 71 N1/8 – 2.100 rpm	1.6 Nm – 0.35 kW	
IE5+ SK 71 N2/8 – 2.100 rpm	3.2 Nm – 0.70 kW	
IE5+ SK 90 N1/8 – 2.100 rpm		1.6 Nm – 0.35 kW
IE5+ SK 90 N2/8 – 2.100 rpm		3.2 Nm – 0.70 kW

Motor ventilated	Size 2	Size
IE5+ SK 71 F1/8 – 2.400 rpm	2.0 Nm – 0.50 kW	
IE5+ SK 71 F2/8 – 2.400 rpm	3.8 Nm – 0.95 kW	
IE5+ SK 90 F1/8 – 2.400 rpm		6.0 Nm – 1.50 kW
IE5+ SK 90 F2/8 – 2.400 rpm		8.8 Nm – 2.20 kW
IE5+ SK 90 F3/8 – 2.400 rpm		11.9 Nm – 3.00 kW
IE5+ SK 90 F4/8 – 2.400 rpm		14.7 Nm – 3.70 kW

NORDAC *ON* options

Functional Safety

NORDAC *ON* and NORDAC *ON+* frequency inverters in sizes 2 and 3 have the “Functional safety” option.

Available in the following devices:

SK 301P, SK 311P

Functions	IOs	Remarks
Functional safety: STO - PLe / SIL 3 SS1-t - PLd / SIL 2	2 safe DIN	Functional safety: 2-channel connection

Internal braking resistors

Internal braking resistors are intended for applications in which slight or only sporadic and brief braking is to be expected.

Internal braking resistors cannot be retrofitted and must therefore be taken into account in the order. For thermal reasons, the rated continuous output is limited to 25%.

	Frequency inverter	Wall mounting	Motor assembly	Resistance [Ω]	Continuous output ¹ P _D [W]	Power consumption ¹ E _{max} [kWs]	Size
SK 30xP	-370-340-A to -950-340-A	●	●	400	20	0.9	2
	-111-340-A to -371-340-A	●	●	300	40	1.3	3
SK 31xP	-370-340-A to -950-340-A	●	●	400	20	0.9	2
	-111-340-A to -371-340-A	●		300	40	1.3	3
	-111-340-A to -151-340-A		●	400	20	0.9	3
	-221-340-A to -371-340-A		●	200	40	2.0	3
SK 35xP	-370-340-A to -750-340-A	●	●	400	20	0.9	2
	-111-340-A to -151-340-A	●		300	40	1.3	3
	-111-340-A to -151-340-A		●	400	20	0.9	3

¹ Permissible continuous power of the braking resistor: 25% of the nominal power

² Once within 10 s,

Interfaces for operation, parameterisation and communication

Operation and parameterisation

Optional modules with up to 14 languages for displaying status and operational indicators, parameterisation and operation of the frequency inverter. In addition to variants for direct mounting on the device or installation in a control cabinet door, handheld versions are also available. See also Accessories starting on page 165

	Type Designation Part number	Description	Remarks
	ParameterBox SK PAR-5H 275 281 614	Control and parameterisation, LCD (illuminated), plain text display in 14 languages, direct control of up to five devices, memory for five device data sets, convenient control keypad, communication via RS485, including 1.5 m connection cable. Handheld, suitable for installation in a control cabinet door. IP54	Connection for data exchange with NORDCON <i>STUDIO</i> to a PC (USB 2.0), (standard "USB-C" connection cable required, e.g. material number: 275 292 100) Power supply, e.g. directly via frequency inverter or PC
	SimpleControlBox SK CSX-3H 275 281 013	Control and parameterisation, 4-digit 7-segment display, direct control of a device, convenient control keypad, including 2 m connection cable. Handheld, IP54	Electrical data: 4.5 ... 30 V DC / 1.3 W, Supply e.g. directly via the frequency inverter.
	Control and parameterisation software NORDCON	Software for control and parameterisation as well as support for commissioning and fault analysis of NORD electronic drive technology. Parameter names in 14 languages	Free download: www.nord.com
	Bluetooth-Stick NORDAC <i>ACCESS BT</i> SK TIE5-BT-STICK 275 900 120	Interface for wireless connection to a mobile terminal device (e.g. tablet or smartphone) via Bluetooth. The NORDCON <i>APP</i> , the NORDCON software for mobile terminal devices, enables smart operation and parameterisation as well as commissioning assistance and fault analysis of NORD electronic drive technology.	Available free of charge for Android and iOS 

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