Field distributors for decentralised applications

Frequency inverter SK 250E-FDS, Motor starter SK 155E-FDS

NORD® DRIVESYSTEMS

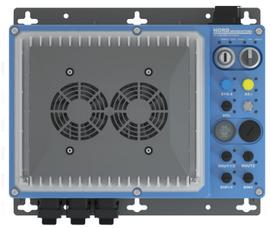
Easy connection
NORDAC *LINK*, SK 250E-FDS and SK 155E-FDS series

General conveyor technology and intralogistics require drive control systems which can be installed easily and are easily accessible during operation or if maintenance is required. The NORDAC *LINK* field distribution system supplements the NORD DRIVESYSTEMS product range and provides customers with a drive control which can be flexibly installed close to the motor. System costs can be significantly reduced thanks to decentralised drive technology.

- Flexible configuration and function – freely configurable according to requirements and the application
- Available as frequency inverters (up to 7.5 kW) and motor starters (up to 3 kW)
- Fast commissioning due to simple operation
- Simple and reliable plug-in capability
- Simplified system maintenance due to integrated maintenance switch and local manual control facility
- Can be integrated into all common bus systems

Motor starters
Size 0 up to 0.75 kW
Size 1 up to 3.0 kW

Frequency inverter
Size 0 up to 0.75 kW
Size 1 up to 3.0 kW



Frequency inverter
Size 2 up to 7.5 kW

NORDAC *LINK*
extensive basic equipment

▸ Monitoring of load torque depending on the output frequency ▸ Individual adaptation of load monitoring to protect the system from overload Available in all inverters from SK 250E and higher	Load monitor
▸ High efficiency in partial load operation ▸ Reduced operating costs due to energy savings of up to 60% ▸ Simple setting Available in all inverters from SK 250E and higher	Energy-saving function
▸ High-precision current vector control for rapid and precise load take-up ▸ Integrated brake chopper to divert generated energy to a brake resistor (braking resistor optional) ▸ Brake management for optimum control of an electro-mechanical holding brake for wear-free brake actuation Available in all inverters from SK 250E and higher	Lifting gear functions
▸ Feedback and evaluation of actual values for implementation of closed circuit control e.g. flow or compensator control ▸ P and I components can be set separately Available in all inverters from SK 250E and higher	Process controller, PI controller
▸ Control of one or more slave inverters by a master inverter ▸ Communication via USS or CANopen® with control word and setpoint values Available in all inverters from SK 250E and higher	Master / Slave operation

▸ High-precision speed regulation
▸ Highest possible acceleration due to direct feedback of the actual speed characteristics to the frequency inverter and therefore also:
  ▸ Full torque down to standstill (speed 0)
  ▸ Digital speed controller with wide range of settings
Available in all inverters from SK 250E and higher
	Encoder feedback (Servo Mode)

▸ Simple adaptation to control systems through optional interfaces ▸ Quick and simple diagnosis via easily visible LED indicators ▸ Various control boxes available for display, operation and parameterisation ▸ Simple operation and parameterisation through logical parameter structure and intuitive layout of control elements Available in all inverters from SK 250E and higher	Handling and communication
▸ Bus systems – NORD supports all common bus systems to enable simple installation in the system design	Bus systems
▸ Functional safety - STO, SS1: Integrated, TÜV-certified safety functions simplify system design. Available for SK 260E and SK 280E inverters	Functional Safety

Standards and approvals
Type code

Motor starter field distributor

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

Approval	Directive	Applied standards	Certificates	Code
CE (European Union)	Low Voltage Directive 2014/35/EU EMV 2014/30/EU RoHS 2011/65/EU	EN 60947-1 EN 60529 EN 60947-4-2 EN 50581	C310801	CE
UL (USA)		UL 60947-1 UL 60947-4-2	E365221	cULus LISTED
CSA (Canada)		C22.2 No.60947-1-13 C22.2 No.60947-4-2-14	E365221	
RCM (Australia)	F2018L00028	EN 60947-1 EN 60947-4-2	133520966	
EAC (Eurasia)	TR CU 004/2011, TR CU 020/2011	IEC 60947-1 IEC 60947-4-2	EAЭC N RU Д-DE.HB27.B.02731/20	EAC

SK 175E-FDS-301-340-A-ASI(-xxx)

- Equipment code (multiple statements possible)
- Device version ASI – Integrated AS-Interface, PBR – integrated PROFIBUS DP
- Radio interference suppression A = class A
- Mains voltage: x40 = 400 V
- Number of mains phases: 3xx = 3-phase
- Digits before decimal point for power: 0 = 0.xx, 1 = 0x.x0
- Device rated power: 111 = 1.1 kW, 301 = 3.0 kW
- Motor starter series: SK 155E-FDS, SK 175E-FDS

Standards and approvals
Type code

Field distributor frequency inverter

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

Approval	Directive	Applied standards	Certificates	Code
CE (European Union)	Low Voltage Directive 2014/35/EU EMV 2014/30/EU RoHS 2011/65/EU	EN 61800-5-1 EN 60529 EN 61800-3 EN 50581	C310701	CE
UL (USA)		UL 61800-5-1	E171342	cULus LISTED
CSA (Canada)		C22.2 No274-13	E171342	
RCM (Australia)	F2018L00028	EN 61800-3	133520966	
EAC (Eurasia)	TR CU 004/2011, TR CU 020/2011	IEC 61800-5-1 IEC 61800-3	EAЭC N RU Д-DE.HB27.B.02725/20	EAC

SK 250E-FDS-301-340-A (-xxx)

- Equipment code (multiple statements possible)
- Radio interference suppression 0 = without, A = class A1 (C2)
- Mains voltage: x40 = 400 V
- Number of mains phases: 3xx = 3-phase
- Digits before decimal point for power: 0 = 0.xx, 1 = 0x.x0
- Device rated power: 370 = 0.37 kW, 301 = 3.0 kW, 751 = 7.50 kW
- Frequency inverter series: SK 250E-FDS, SK 260E-FDS, SK 270E-FDS, SK 280E-FDS

AS-Interface

Modern automation systems

Modern automation systems have a wide range of requirements, so that a suitable bus system and drive components must be selected in order to ensure efficient implementation.

AS-Interface

For the lower field level, the AS-Interface is a cost-effective solution which enables the networking of binary sensors and actuators. With NORDAC *LINK*, special versions which provide an appropriate solution by means of an AS-Interface, are available for this price-sensitive area.
The supply voltage (power) is connected separately via the corresponding plugs. Depending on the version of the device, the control voltage of the frequency inverter is generated either via an integrated power supply unit or is supplied separately via the yellow AS-Interface cable. This eliminates the need for an additional AUX cable (black). The type of addressing possible (standard or A/B slaves) also depends on the version of the device. The „ASI“ and „AUX“ variants are designed as double slave with the frequency inverter. With the double slave, there are two physical A/B slaves in the device which can be configured for extended data transfer according to the CTT2 protocol. Additional IO bits (1 x BUS IN + 2 x BUS OUT) are available for the so-called extended data transfer.

Available in the following devices:
SK 155E-FDS-...-ASI,
SK 175E-FDS-...-ASI,
SK 270E-FDS,
SK 280E-FDS

PROFIBUS DP®

This bus system allows for cyclic exchange of 4 control or 4 status bits via a process data object (with up to 12 Mbps). Addressing is performed via a rotary encoding switch. The PROFIBUS® termination resistor can be set via a standard M12 termination resistor. Connection is made with M12 plug connectors.

Available in all
SK 175E ... ASI devices

Variant	Slave profil	Slave typ	Control voltage	Inputs/Outputs	Configuration via parameters
-ASI	S-7.A	A/B-Slave	Yellow AS-I cableg	4I/40 + 1I/20[1]	●
-AUX	S-7.A	A/B-Slave	Black AS-I cable	4I/40 + 1I/20[1]	●
-AXS	S-7.0	Standard	Black AS-I cabl	4I/40	●

[1] additionally available I/Os for configuration of CTT2 protocol (only available with frequency inverter)

The entire team
All device versions at a glance

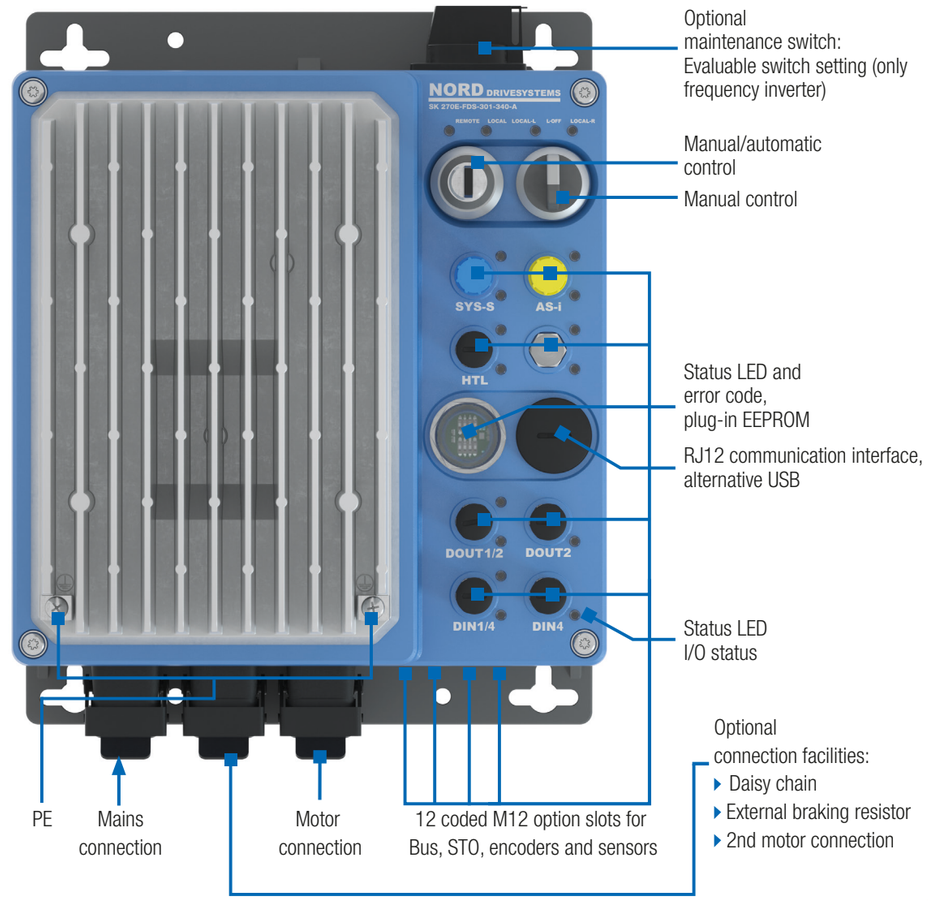
	SK 155E-FDS	SK 175E-FDS	SK 250E-FDS	SK 260E-FDS	SK 270E-FDS	SK 280E-FDS
	Motor starters 0,06 - 3,0 kW		Frequency inverters 0,37 - 7,5 kW			
Plug connection of mains, motor and control cables	●	●	●	●	●	●
Energy bus - loop-through of mains supply cables	○	○	○	○	○	○
Repair/maintenance switch	○	○	○	○	○	○
Sensorless current vector control (ISD control)	❍	❍	●	●	●	●
Brake chopper (brake resistor optional)	❍	❍	●	●	●	●
RS-232/ RS-485 parameterisation and diagnostic interface (optional USB)	●	●	●	●	●	●
4 parameter sets, which can be switched over during operation	❍	❍	●	●	●	●
Parameters pre-set with standard values	●	●	●	●	●	●
Automatic determination of motor data	❍	❍	●	●	●	●
Energy-saving function, optimised efficiency in partial load operation	❍	❍	●	●	●	●
Integrated EMC line filters	according to EN 55011: Class A up to 20 m motor cable		according to EN 61800-3: Category C2 up to 10 m[1] motor cable			
Drive unit monitoring function, including motor monitoring, motor thermistor evaluation	●	●	●	●	●	●
Reversing function	❍	●	●	●	●	●
Process controller / PI controller	❍	❍	●	●	●	●
Speed control (closed loop) with incremental encoder (HTL)	❍	❍	●	●	●	●
POSICON positioning with incremental encoder (HTL) or absolute encoder (CANopen®)	❍	❍	●	●	●	●
PLC functionality	●	●	●	●	●	●
Synchronous motor operation (PMSM)	❍	❍	●	●	●	●
Modification for operation in IT network[2]	●	●	●	●	●	●
Plug-in parameter storage (EEPROM) for additional data backup	❍	❍	○	○	○	○
All common field bus systems	❍	❍	○	○	○	○
Brake management for mechanical holding brake	○	○	○	○	○	○
Lifting gear functionality	❍	❍	○	○	○	○
Safe Stop function (STO, SS1)	❍	❍	❍	●	❍	●
Torque control and limitation	❍	❍	●	●	●	●
AS-Interface on board	❍	○[3]	❍	❍	●	●
PROFIBUS DP® on board	❍	○[3]	❍	❍	❍	❍
Internal 24 V power supply unit to supply the control board	○	○	○	○	○	○
Internal / external braking resistors	❍	❍	○	○	○	○
Local control elements (e.g switches, key switches)	○	○	○	○	○	○

[1] Cable-bound transmission only
[2] Must be taken into account for the order
[3] Either AS-Interface or PROFIBUS® DP

● Available as standard
○ Optional
❍ Not available

	SK 155E-FDS	SK 175E-FDS	SK 250E-FDS	SK 260E-FDS	SK 270E-FDS	SK 280E-FDS
	Motor starters 0,06 - 3,0 kW		Frequency inverters 0,37 - 7,5 kW			
Number of digital inputs	3 (+2 sensor inputs for bus)[2]		5+2[1,2]			
Number of analogue inputs	❍	❍	2[1]	2[1]	2[1]	2[1]
Number of digital outputs	2	2	2	2	2	2
Temperature sensor (PTC)	1	1	1	1	1	1
CANopen®	❍	❍	○	○	○	○
HTL	❍	❍	○	○	○	○

[1] Alternatively, the analogue inputs can also be used as digital inputs (not PLC-compatible).
[2] If necessary, individual inputs can be defined at the factory by the use of certain optional modules.

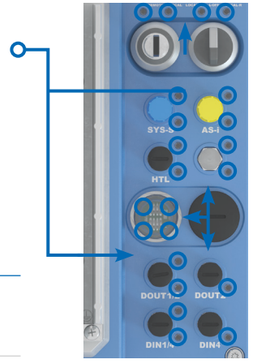


The entire team
All device versions at a glance

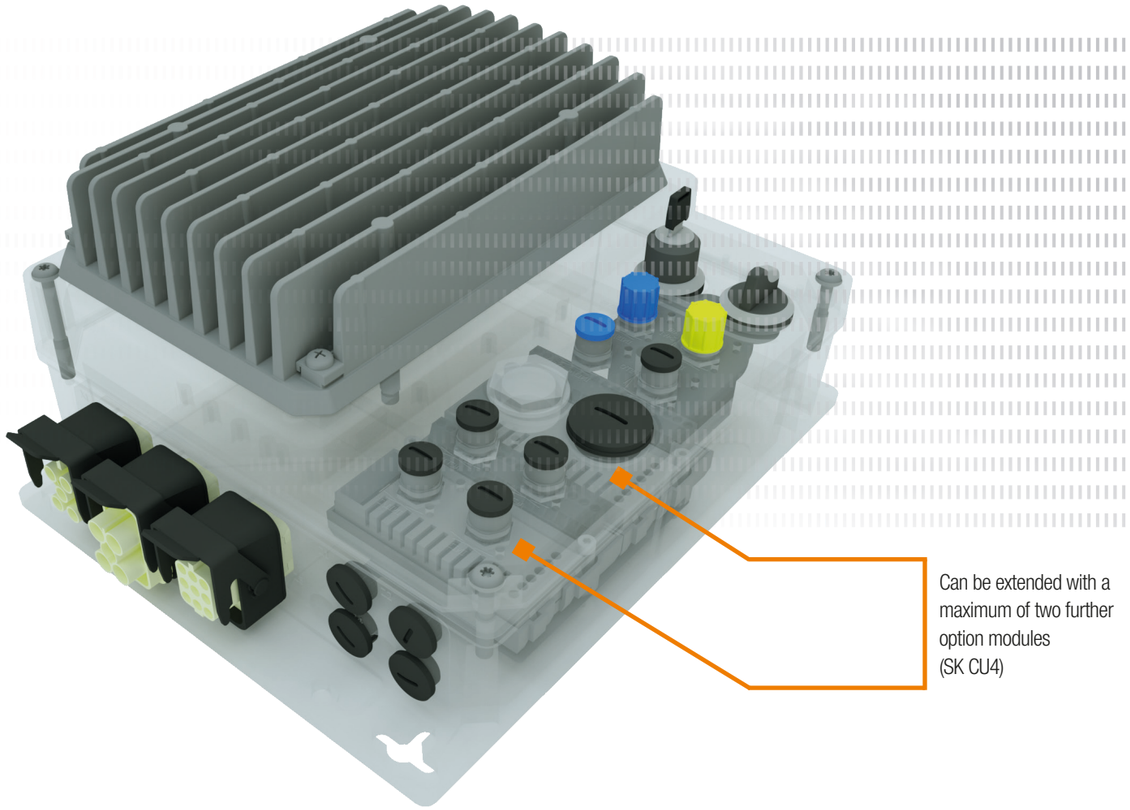
LED- status indicators use/meaning

The frequency inverter is equipped with LED indicator lights These are used to indicate the signal statuses of the relevant option slot.

One option slot is closed with a transparent screw cap. The LED status indicator lights which are installed in this option slot act as diagnostic LEDs and are therefore always visible.



Ausführung LED-Anzeige	Use/Meaning
Yellow - Single colour - Static	Indication of the signal status („ON“ / „OFF“) or the associated function of the IOs.
Red/Green - Single or dual colour - Static or dynamic	Indication of the operating statuses on the inverter or communication level.



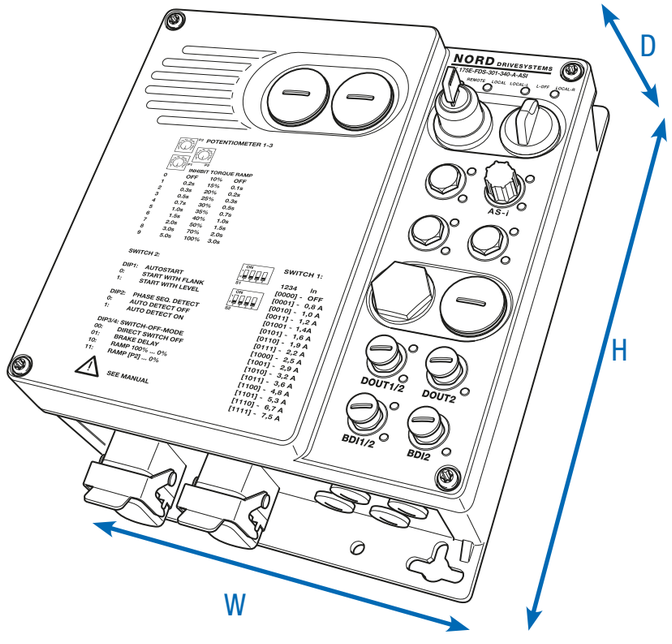
NORDAC *LINK* motor starter
3~ 380 ... 500 V

Typical overload capacity	150 % for 9 s up to 170 s (adjustable (shut-down class 5, 10 A, 10))
Motor starter efficiency	> 98 %
Ambient temperature	-25 °C...+50 °C (S1)
Protection class	IP65

Protective measures against	▸ Mains phase failure ▸ Motor phase failure ▸ Flux monitoring ▸ Motor over temperature (PTC) ▸ Motor overload ▸ Mains over/under voltage
Motor temperature monitoring	I^2t Motor PTC / bi-metal switch
Leakage current	< 20 mA

Motor starter SK 155E-FDS... / SK 175E-FDS...	Nominal motor power [kW]	[hp]	Nominal output current rms [A]	Line voltage/ Output voltage	Weight [kg]	(Overall) dimensions H x W x D [mm]	Size
-111-340-B	bis 1,1	bis 1 1/2	3,2	3~ 380 V … 500 V, -20 % / +10 %, 47 ... 63 Hz	ca. 3	0	312[1] x 243 x 104[2]
-301-340-B	bis 3,0	bis 4	7,5		ca. 3	1	312[1] x 243 x 104[2]

[1] Without maintenance switch H=307 mm
[2] With key switch and key inserted D=125 mm



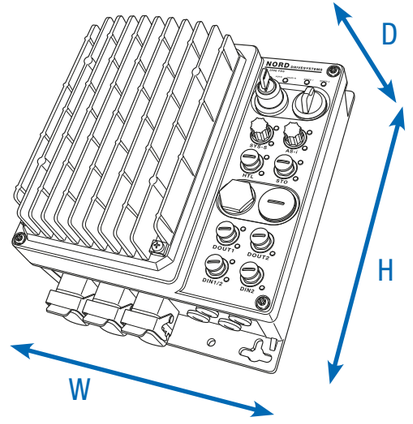
NORDAC *LINK* FREQUENCY INVERTER
3~ 380 ... 500 V

Output frequency	0.0 ... 400.0 Hz
Pulse frequency	3.0 ... 16.0 kHz
Typical overload capacity	150 % for 60 s, 200 % for 3.5 s
Frequency inverter efficiency	> 95 %
Ambient temperature	-25 °C ... +40 °C (S1)

Protection class	IP65 devices up to 1.5 kW however not with option -FANO[1] IP55 devices of 2.2 kW and higher as well as devices <2.2 kW, with option -FANO[1]
Regulation and control	Sensorless current vector control (ISD), linear V/f characteristic curve
Motor temperature monitoring	I^2t Motor PTC / bi-metal switch
Leakage current	< 30 mA

[1] (heat sink with mounted fan)

Frequency inverters SK 2xxE-FDS...	Nominal motor power 400 V [kW]	480 V [hp]	Nominal output current rms [A]	Line voltage/ Output voltage	Weight [kg]	(Overall) dimensions H x W x D [mm]	Size
-370-340-A	0,37	1/2	1,1	3 ~ 380...500 V, -20 % / +10 %, 47 ... 63 Hz 3 ~ AC 0 V up to mains voltage	3,8	312 x 243 x 130	0
-550-340-A	0,55	3/4	1,7		4,6	312 x 243 x 130	0
-750-340-A	0,75	1	2,3		4,6	312 x 243 x 130	0
-111-340-A	1,1	1 1/2	3,1		4,6	312 x 243 x 175[1]	1
-151-340-A	1,5	2	4,0		4,6	312 x 243 x 175[1]	1
-221-340-A	2,2	3	5,5		4,8	312 x 243 x 175[1]	1
-301-340-A	3,0	4	7,0		4,8	312 x 243 x 175[1]	1
-401-340-A	4,0	5	8,9		6,8	312 x 358 x 184	2
-551-340-A	5,5	7	11,7		6,8	312 x 358 x 184	2
-751-340-A	7,5	10	15		6,8	312 x 358 x 184	2



[1] Devices up to 1.5 kW power, without -FANO option (optional fan on heat sink) D=155

Interfaces for operation, parameterisation and communication

Operation and parameterisation

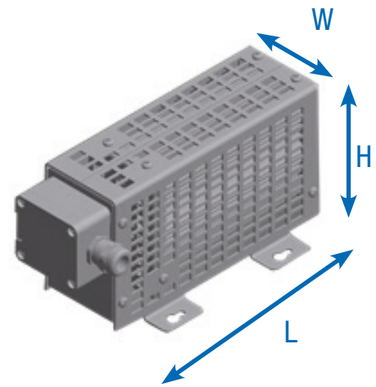
Optional modules with up to 14 languages for displaying status and operational indicators, parameterisation and operation of the frequency inverter. In addition to variants for direct mounting on the device or installation in a control cabinet door, hand held versions are also available.

	Type Designation Material No.	Description	Remarks
	ParameterBox SK PAR-3H 275 281 014	Control and parameterisation, LCD screen (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 RS-485, including 2 m connection cable. Handheld, IP54	Connection for data exchange with NORDCON on a PC (USB 2.0), including 1 m connection cable, 4.5 … 30 V DC/1.3 W Supply e.g. directly via the frequency inverter.
	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 ACCESS BT SK TIE5-BT-STICK 275 900 120	Interface for wireless connection to a mobile terminal device (e.g. tablet or smartphone) via Bluetooth. With the aid of the NORDCON APP, 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

Brake resistors for dynamic drive characteristics

Chassis braking resistors, SK BRW5

The resistor elements are integrated into a housing cage and must be connected to the particular frequency inverter via a separate connecting cable.
The brake resistors must be mounted horizontally.
A shielded cable which is as short as possible should be used for this purpose.
The brake resistors have protection class IP65.



Frequency inverters SK 2xxE-FDS ...	Resistor type Material No.	Resistance [Ω]	Continuous output [W]	Short-term power [kW][1]	(Overall) dimensions L x W x H [mm]
0.55 kW ... 2.2 kW	SK BRW5-1-300-225 278 281 070	300	225	4	245 x 120 x 123
3.0 kW ... 7.5 kW	SK BRW5-2-150-450 278 281 071	150	450	8	405 x 120 x 123
Temperature monitoring for SK BRW5 resistors integrated (2 terminals 4 mm)			Bimetallic switch as opener. Nominal switching temperature: 180°C.		

[1] Once within 120 s, for a maximum duration of 1.2 s

Internal braking resistors

Internal brake resistors are intended for applications in which slight or only sporadic and brief braking (e.g. continuous conveyor equipment, mixing equipment) is to be expected. In addition, they enable the use of the frequency inverter in very confined spaces or in an explosive atmosphere.

Internal brake 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 inverters SK 2xxE-FDS-...	Resistance [Ω]	Continuous power Pn [W]	Power consumption[1] Pmax [kWs]
… 750-340-	400 Ω	100 W	1.0 kWs
… 151-340- to … 301-340-	400 Ω	100 W	1.0 kWs
… 401-340- to … 751-340-	200 Ω	200 W	2.0 kWs

[1] maximum once within 10s

Variant		Designation Material No.	Installation	Attached / separate	Protection class	Number of inputs / outputs	Description	Remarks
PROFIBUS DP®.		SK CU4-PBR 275 271 000	●	❍	IP20	2 digital inputs	Interface as gateway for direct connection of up to four devices to a PROFIBUS DP® field bus.	Baud rate: maximum 12 MBd Protocol: DPV 0 and DPV 1
		SK CU4-PBR-C[1] 275 271 500	●	❍	IP20			
CANopen®		SK CU4-CAO 275 271 001	●	❍	IP20	2 digital inputs	Interface as gateway for direct connection of up to four devices to a CANopen® field bus.	Baud rate: maximum 1 MBaud Protocol: DS 301 and DS 402
		SK CU4-CAO-C[1] 275 271 501	●	❍	IP20			
DeviceNet®		SK CU4-DEV 275 271 002	●	❍	IP20	2 digital inputs	Interface as gateway for direct connection of up to four devices to a DeviceNet® field bus.	Baud rate: maximum 500 kBaud Profile: AC-Drive and NORD-AC
		SK CU4-DEV-C[1] 275 271 502	●	❍	IP20			

Variant		Designation Material No.	Installation	Attached / separate	Protection class	Number of inputs / outputs	Description	Remarks
IO-Erweiterungen		SK CU4-IOE2 275 271 007	●	❍	IP20	2 digital and 2 analogue inputs, 2 analogue outputs	Sensor and actuator signal processing, connection via terminal bar	Analogue signals: IN / OUT: 0(2) ... +10 V or 0(4) ... 20 mA
		SK CU4-IOE2-C[1] 275 271 507	●	❍	IP20			
		SK CU4-IOE 275 271 006	●	❍	IP20	2 digital and 2 analogue inputs, 1 analogue output		Analogue signals: IN: -10 V ... +10 V or 0(4) ... 20 mA OUT: 0(2) ... +10 V or 0(4) ... 20 mA
		SK CU4-IOE-C[1] 275 271 506	●	❍	IP20			

Variant		Designation Material No.	Installation	Attached / separate	Protection class	Number of inputs / outputs	Description	Remarks
EtherCAT®		SK CU4-ECT 275 271 017	●	❍	IP20	2 digital inputs	Interface as gateway for direct connection of up to four devices to an EtherCAT® field bus.	Baud rate: maximum 100 MBaud, CoE (CAN over EtherCAT®), SK CU4 module: Derating (see data sheet)
		SK CU4-ECT-C[1] 275 271 517	●	❍	IP20			
EtherNet/IP®		SK CU4-EIP 275 271 019	●	❍	IP20	2 digital inputs	Interface as gateway for direct connection of up to four devices to an EtherNet/IP® fieldbus.	Baud rate: maximum 100 MBaud, SK CU4 module: Derating (see data sheet)
		SK CU4-EIP-C[1] 275 271 519	●	❍	IP20			
POWERLINK		SK CU4-POL 275 271 018	●	❍	IP20	2 digital inputs	Interface as gateway for direct connection of up to four devices to a POWERLINK field bus.	Baud rate: maximum 100 MBaud, SK CU4 module: Derating (see data sheet)
		SK CU4-POL-C[1] 275 271 518	●	❍	IP20			
PROFINET IO®		SK CU4-PNT 275 271 015	●	❍	IP20	2 digital inputs	Interface as gateway for direct connection of up to four devices to a PROFINET IO® field bus.	Baud rate: maximum 100 MBaud, Conformance class B and C, SK CU4 module: Derating (see data sheet)
		SK CU4-PNT-C[1] 275 271 515	●	❍	IP20			

Variant		Designation Material No.	Installation	Attached / separate	Protection class	Number of inputs / outputs	Description	Remarks
PROFIsafe		SK CU4-PNS 275 271 014	●	❍	IP55	2 safe digital inputs(SI), 2 safe digital outputs(SO)	Interface as gateway for direct connection of up to four devices to a PROFIsafe field bus.	Baud rate: maximum 100 MBaud, Conformance class B and C,

Not to be underestimated – the correct connection method

With the NORDAC *LINK*, FLEX, *BASE* and *START* frequency inverters and motor starters, the NORD DRIVESYSTEMS Group provides the right product for motor control for all decentralised drive technology applications. The advantages, such as short motor cables, improved EMC and installation without control cabinets are obvious.

Connection of the decentralised components (motor and electronics) is made either with a permanent connection with cable glands1 or can be in the form of plug connectors. However, the full advantages of decentralised drive technology are only achieved with the selection of plug-in connectors.

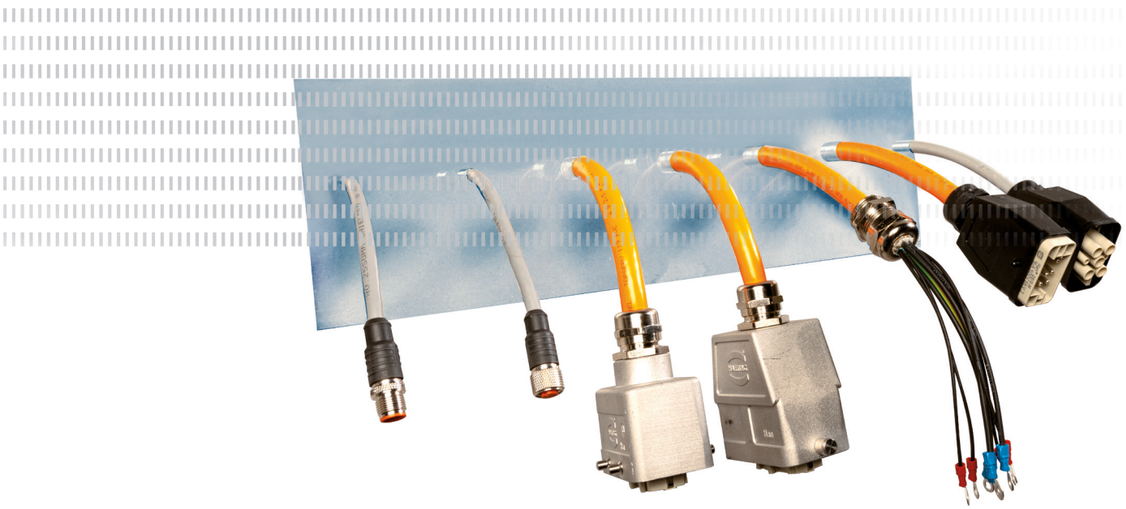
- Quick and simple electrical connection
- Minimisation of connection errors
- Minimum installation effort for installation, maintenance and servicing
- Reduced downtime in case of replacement

NORD supplies an extensive range of connection and control cables.

- Depending on the version, connecting cables include power connection cables (mains and motor) and if necessary cables for thermistors as well as 24 V DC control voltage.
- Control cables are exclusively used for transmitting control signals (encoder, bus, IO signals).

Connection and control cables are supplied pre-assembled. They are available in various lengths and can optionally be provided with open ends or plug connectors. Connection cables are certified for global use according to the relevant IEC and UL standards.
Typically, all cables2 are shielded.

[1] Not for NORDAC *LINK*
[2] Except for mains connection/daisy chain cables



Designation of pre-assembled cables

Pre-assembled cables

- Cables for motor and frequency inverter connection
- Mains connection and signal cables
- Customised plugs and cable lengths

SK CE-HQ8-K-MA-H10E-M1B-3_0M

Labelling for various combinations
3_0 is length 3m
M stands for IEC (EU) certified cable,
Note: only permissible for plug connectors

Motor / Encoder / Brake resistor cable ends
Version and material labelling
H10E = HAN 10E plug connector
M1B = Metal lock, otherwise identical to frequency inverter / motor starter cable end
Note: Material labelling is only permissible for plug connectors

Cable category
LE = Line connection
LA = Daisy chain line connection
MA = Motor connection
BRW5 = Brake resistor
AG = Absolute encoder
IG = Incremental encoder
...C = Combination encoder (AG/IG)
IG0 = Encoder with zero track

Frequency inverter/motor starter cable ends:
Version and material labelling
HQ8 = HAN Q8/0 plug connector
HQ4 = HAN Q4 plug connector(w/o = without)
HQ42 = HAN Q4/2 plug connector (24 V DC)
OE = Open ends
A5F = M12 A-coded 5-pin female
B4M = M12 B-coded 4-pin male
K = Plug connector with plastic housing
M = Plug connector with metal housing

Cable extension

Technical data cables

The design depends on the ambient conditions and the type of installation and must be decided by the customer. All options can be requested from NORD according to the specific project.

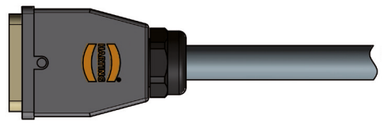
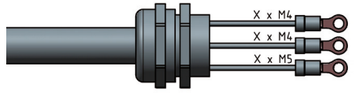
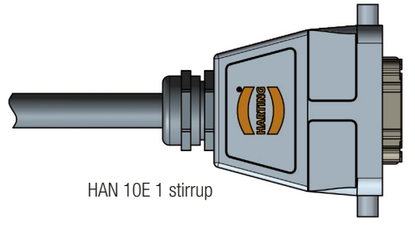
Feature	Standard	Options
Conductor material	Copper	-
Installation type	Permanent installation	-
Cable insulation	Polyvinyl chloride (PVC)	Polyurethane (PUR)
Protective sleeve	No	On request
Cable length	Motor cables: 1.5 m – 3.0 m – 5.0 m Mains cables: 1.5 m – 3.0 m – 5.0 m Daisy chain cables: 1.5 m – 3.0 m – 5.0 m Encoder cables: 1.5 m – 3.0 m – 5.0 m Brake resistor cables: 2.0 m – 3.0 m	On request

Motor cables

Product overview – Motor cables

Depending on the motor, the following shielded motor connection cables are available.

Designation	Motor power [kW]	Certification	Part number for length [m] 1,5	3	5
SK CE-HQ8-K-MA-OE20-M4	0,12 - 0,37	EU	275 274 800	275 274 801	275 274 802
SK CE-HQ8-K-MA-OE20-M4	0,12 - 0,37	UL		275 274 211	275 274 212
SK CE-HQ8-K-MA-OE25-M4	0,55 - 1,5	EU	275 274 805	275 274 806	275 274 807
SK CE-HQ8-K-MA-OE25-M4	0,55 - 1,5	UL		275 274 216	275 274 217
SK CE-HQ8-K-MA-OE32-M4	2,2 - 3,0	EU	275 274 825	275 274 826	275 274 827
SK CE-HQ8-K-MA-OE32-M4	2,2 - 3,0	UL		275 274 226	275 274 227
SK CE-HQ8-K-MA-OE32-M5	4,0	EU	275 274 830	275 274 831	275 274 832
SK CE-HQ8-K-MA-OE32-M5	4,0	UL		275 274 231	275 274 232
SK CE-HQ8-K-MA-OE32-M6	5,5 - 9,2	EU	275 274 835	275 274 836	275 274 837
SK CE-HQ8-K-MA-OE32-M6	5,5 - 9,2	UL		275 274 236	275 274 237
SK CE-HQ8-K-MA-H10E-M1B	0,12 - 4,0	EU	275 274 810	275 274 811	275 274 812

Frequency inverter/Motor starter connection	Motor connection	Required motor option[1]
	 Open ends	ZKK
	 HAN 10E 1 stirrup	MS31 or MS31E

[1]For further information about motor options please refer to motor catalogue M7000

Mains cables / Daisy chain cables

Product overview – Mains cable

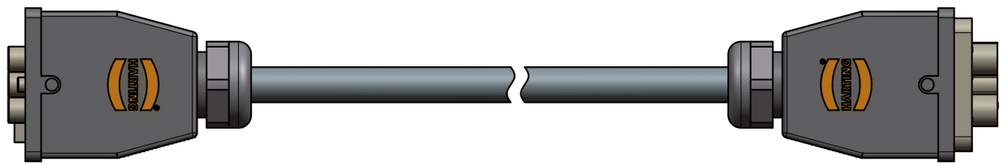
The following unshielded mains cables are available. A simple plug-in connection for frequency inverters can be achieved with the HQ4 variant. With a further variant (HQ42) a 24 V DC supply can also be implemented.

			Part number for length [m]		
Designation	24 V DC supply	Certification	1,5	3	5
SK CE-HQ4-K-LE-OE	no	EU	275 274 840	275 274 841	275 274 842
SK CE-HQ4-K-LE-OE	no	UL		275 274 241	275 274 242
SK CE-HQ42-K-LE-OE	yes	EU	275 274 845	275 274 846	275 274 847
SK CE-HQ42-K-LE-OE	yes	UL		275 274 246	275 274 247

Product overview – Daisy chain cables

A daisy chain cable is designed for looping the mains connection (plug connections on both sides) from one frequency inverter to the next. The variants as for mains cables are available. These cables are also unshielded.

			Part number for length [m]		
Designation	24 V DC supply	Certification	1,5	3	5
SK CE-HQ4-K-LA-HQ4	no	EU	275 274 850	275 274 851	275 274 852
SK CE-HQ4-K-LA-HQ4	no	UL		275 274 251	275 274 252
SK CE-HQ42-K-LA-HQ42	yes	EU	275 274 855	275 274 856	275 274 857
SK CE-HQ42-K-LA-HQ42	yes	UL		275 274 256	275 274 257

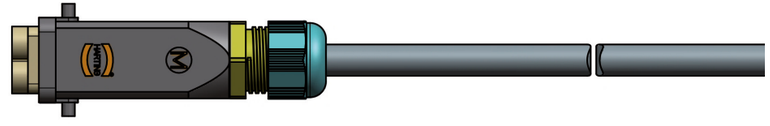


Brake resistor cable / Control cables

Product overview – Braking resistor cables

The following shielded cables are available for connecting an external brake resistor

		Part number for length [m]	
Designation	Certification	2	3
SK CE-HQ2-K-BRW5-OE	EU	275 274 881	275 274 899



Product overview – Control cables

Control cables for connection to an encoder are typically connected with so-called “M12 plug connectors”.
The following system solutions are available for encoder connection.

	Motors						Control cable
Designation	IE1-3	IE4	IE5+	Encoders[1]		Cable type	Length - Part No.
AG4 cable set consisting of 1x each SK CE-A5F-AGC-A5F SK CE-B4M-IGC-B5F	●	●	❍	AG4	- 19 551 886	AG4 cable set	1,5 m - 275 274 640 3,0 m - 275 274 641 5,0 m - 275 274 642
SK CE-B4M-IG-A8F	●	❍	❍	IG12P IG22P IG42P	- 19 651 501 - 19 651 511 - 19 651 521	HTL without zero track	1,5 m - 275 274 675 3,0 m - 275 274 676 5,0 m - 275 274 677
SK CE-A5M-IG0-A5F	❍	●	❍	IG22P5	- 19 651 910	HTL with zero track	1,5 m - 275 274 874 3,0 m - 275 274 876 5,0 m - 275 274 877
	❍	❍	●	IG62P5	- 19 605 002		
SK CE-A5M-IG0-A8F	❍	●	❍	IG22P8	- 19 651 911	HTL with zero track	1,5 m - 275 274 645 3,0 m - 275 274 646 5,0 m - 275 274 647

[1] Further information about encoders can be obtained from motor catalogue M7000.

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