



# Field distributors NORDAC LINK for decentralised applications

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



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



[NORDAC \*LINK\*  
Frequency inverter](#)



[NORDAC \*LINK\*  
Motor starter](#)



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

<ul style="list-style-type: none"> <li>▶ Monitoring of load torque depending on the output frequency</li> <li>▶ Individual adaptation of load monitoring to protect the system from overload</li> </ul> <p>Available in all inverters from SK 250E and higher</p>	Load monitor
<ul style="list-style-type: none"> <li>▶ High efficiency in partial load operation</li> <li>▶ Reduced operating costs due to energy savings of up to 60%</li> <li>▶ Simple setting</li> </ul> <p>Available in all inverters from SK 250E and higher</p>	Energy-saving function
<ul style="list-style-type: none"> <li>▶ High-precision current vector control for rapid and precise load take-up</li> <li>▶ Integrated brake chopper to divert generated energy to a brake resistor (braking resistor optional)</li> <li>▶ Brake management for optimum control of an electro-mechanical holding brake for wear-free brake actuation</li> </ul> <p>Available in all inverters from SK 250E and higher</p>	Lifting gear functions
<ul style="list-style-type: none"> <li>▶ Feedback and evaluation of actual values for implementation of closed circuit control e.g. flow or compensator control</li> <li>▶ P and I components can be set separately</li> </ul> <p>Available in all inverters from SK 250E and higher</p>	Process controller, PI controller
<ul style="list-style-type: none"> <li>▶ Control of one or more slave inverters by a master inverter</li> <li>▶ Communication via USS or CANopen® with control word and setpoint values</li> </ul> <p>Available in all inverters from SK 250E and higher</p>	Master / Slave operation
<ul style="list-style-type: none"> <li>▶ High-precision speed regulation</li> <li>▶ Highest possible acceleration due to direct feedback of the actual speed characteristics to the frequency inverter and therefore also: <ul style="list-style-type: none"> <li>▶ Full torque down to standstill (speed 0)</li> <li>▶ Digital speed controller with wide range of settings</li> </ul> </li> </ul> <p>Available in all inverters from SK 250E and higher</p>	Encoder feedback (Servo Mode)
<ul style="list-style-type: none"> <li>▶ Simple adaptation to control systems through optional interfaces</li> <li>▶ Quick and simple diagnosis via easily visible LED indicators</li> <li>▶ Various control boxes available for display, operation and parameterisation</li> <li>▶ Simple operation and parameterisation through logical parameter structure and intuitive layout of control elements</li> </ul> <p>Available in all inverters from SK 250E and higher</p>	Handling and communication
<ul style="list-style-type: none"> <li>▶ Bus systems – NORD supports all common bus systems to enable simple installation in the system design</li> </ul>	Bus systems
<ul style="list-style-type: none"> <li>▶ Functional safety - STO, SS1: Integrated, TÜV-certified safety functions simplify system design.</li> </ul> <p>Available for SK 260E and SK 280E inverters</p>	Functional Safety
<ul style="list-style-type: none"> <li>▶ Functional safety in bus communication with PROFIsafe, integrated and TÜV-certified safety functions (SLS, SSR, SDI, SOS, SSM), connection and evaluation of a fail-safe SIN/COS encoder possible, 2 safe digital inputs (SI) and outputs (SO), max. 100 Mbaud, conformance class B and C, this option cannot be integrated later and must be specified during ordering</li> </ul> <p>Available for SK 260E and SK 280E inverters in combination with SK CU4-PNS</p>	Functional safety in bus communication

# Standards and approvals

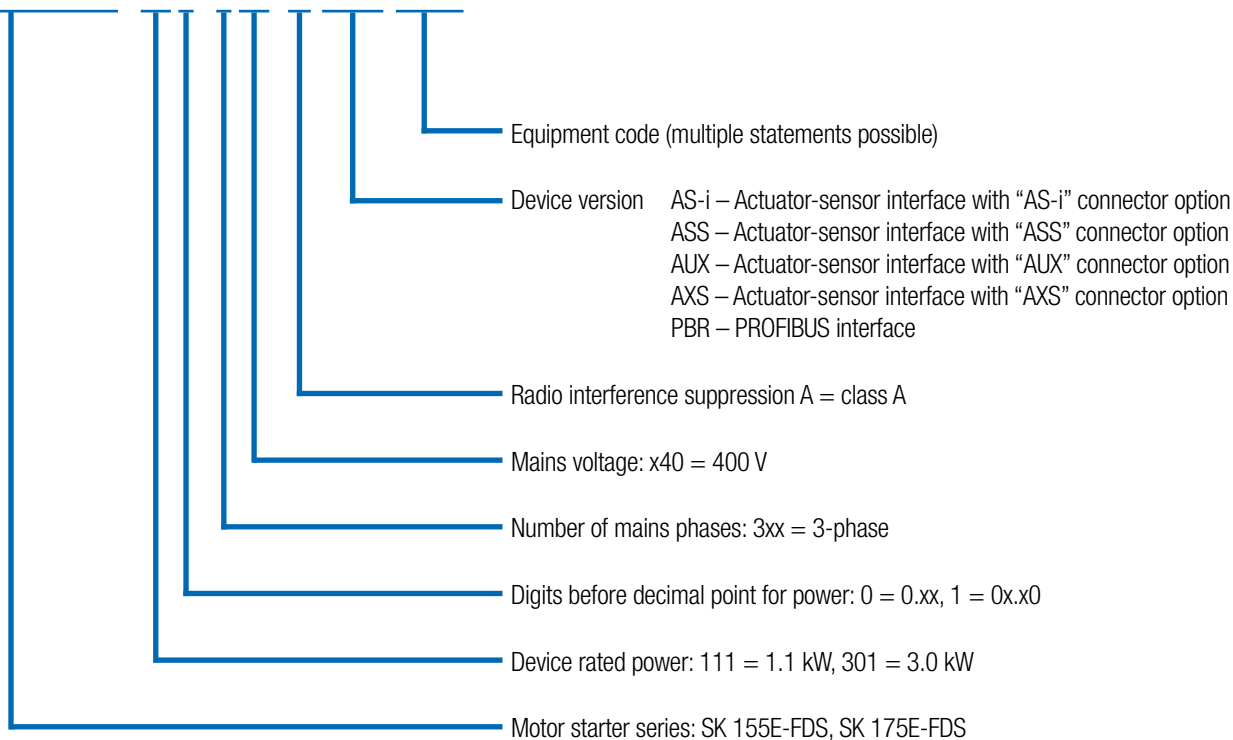
## Type code

### 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	EN 60947-1 EN 60529	C310801	
	EMC 2014/30/EU	EN 60947-4-2 EN 630001		
	RoHS 2011/65/EU			
	Delegated directive (EU) 2015/863			
UL (USA)		UL 60947-1 UL 60947-4-2	E365221	
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	EAЭС N RU Д- DE.HB27.B. 02731/20	
UkrSEPRO (Ukraine)		EN 60947-1 EN 60529 EN 60947-4-2 EN 63000 EN 60947-1 EN 60947-4 EN 61558-1 EN 50581	C311900	
UKCA (United Kingdom)		EN 60947-1 EN 60529 EN 60947-4-2 EN 63000 EN 61800-9-1 EN 61800-9-2	C350801	

## SK 175E-FDS-301-340-A-AXS(-xxx)










# Standards and approvals

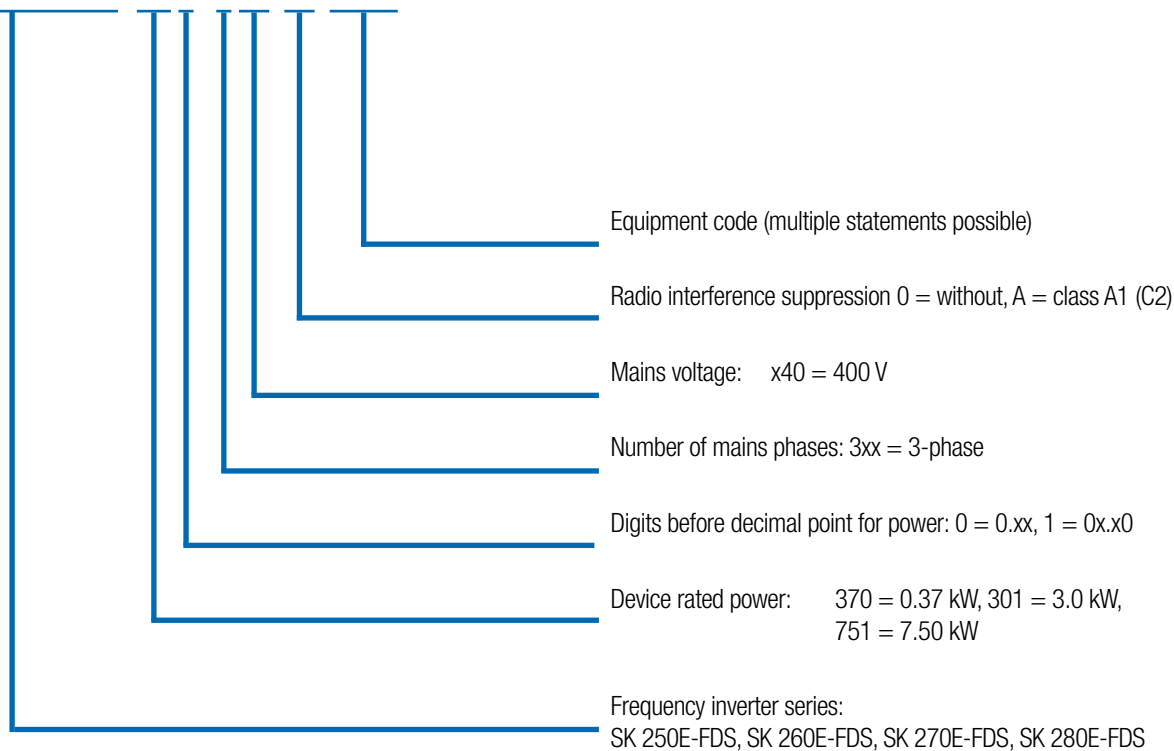
## Type code

### 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	EN 61800-5-1	C310701		
		2014/35/EU			EN 60529
	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)	2019/1781			
	Ecodesign				
UL (USA)		UL 61800-5-1	E171342		
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		
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	C350900		

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



# 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.

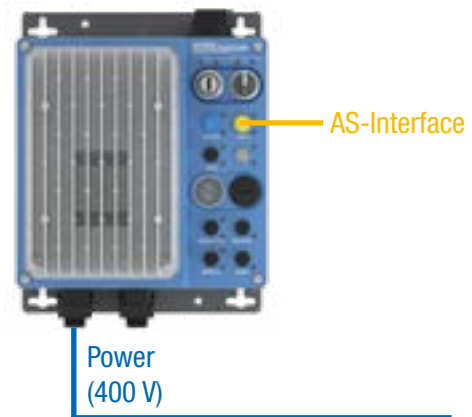
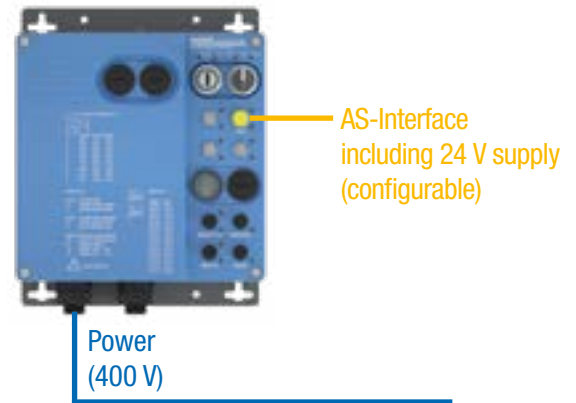
## AS-Interface

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 <sup>1</sup>	●
-AUX	S-7.A	A/B-Slave	Black AS-I cable	4I/40 + 1I/20 <sup>1</sup>	●
-AXS	S-7.0	Standard	Black AS-I cabl	4I/40	●

<sup>1)</sup> 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 <sup>1</sup> motor cable			
Drive unit monitoring function, including motor monitoring, motor thermistor evaluation	●	●	●	●	●	●
Reversing function	○	●	●	●	●	●
PI controller	○	○	●	●	●	●
Process controller / compensator control	○	○	●	●	●	●
Speed control (closed loop) with incremental encoder (HTL, RS-485)	○	○	●	●	●	●
POSiCON positioning with incremental encoder (HTL) or absolute encoder (CANopen <sup>®</sup> )	○	○	●	●	●	●
PLC functionality	●	●	●	●	●	●
Synchronous motor operation (PMSM)	○	○	●	●	●	●
Modification for operation in IT network <sup>2</sup>	●	●	●	●	●	●
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	○	● <sup>3</sup>	○	○	●	●
PROFIBUS DP <sup>®</sup> on board	○	● <sup>3</sup>	○	○	○	○
Internal 24 V power supply unit to supply the control board	●	●	●	●	●	●
Internal / external braking resistors	○	○	●	●	●	●
Local control elements (e.g switches, key switches)	●	●	●	●	●	●

<sup>1</sup> Cable-bound transmission only

<sup>2</sup> Must be taken into account for the order

<sup>3</sup> Either AS-Interface or PROFIBUS<sup>®</sup> DP

● Available as standard

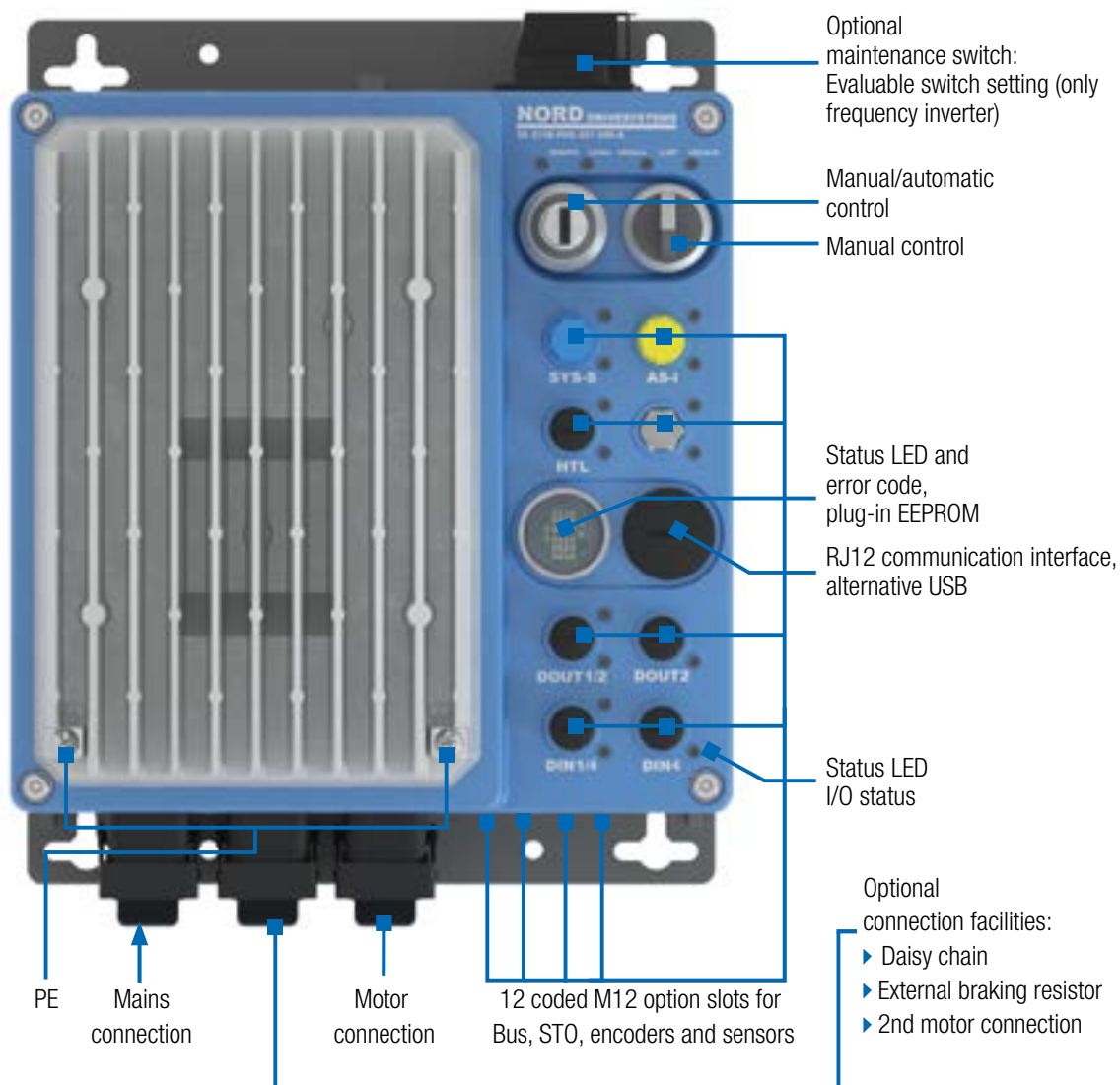
● Optional

○ 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) <sup>2</sup>		5+2 <sup>1,2</sup>			
Number of analogue inputs	○	○	2 <sup>1</sup>	2 <sup>1</sup>	2 <sup>1</sup>	2 <sup>1</sup>
Number of digital outputs	2	2	2	2	2	2
Temperature sensor (PTC)	1	1	1	1	1	1
CANopen <sup>®</sup>	○	○	●	●	●	●
RS-485 encoder interface	○	○	●	●	●	●

<sup>1</sup> Alternatively, the analogue inputs can also be used as digital inputs (not PLC-compatible).

<sup>2</sup> If necessary, individual inputs can be defined at the factory by the use of certain optional modules.



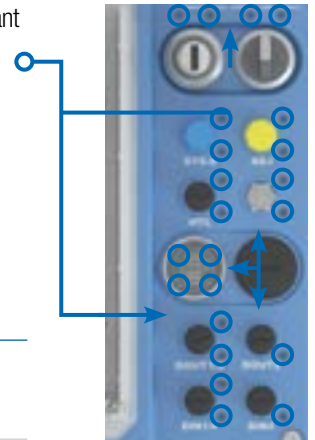




# LED- status indicators use/meaning

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

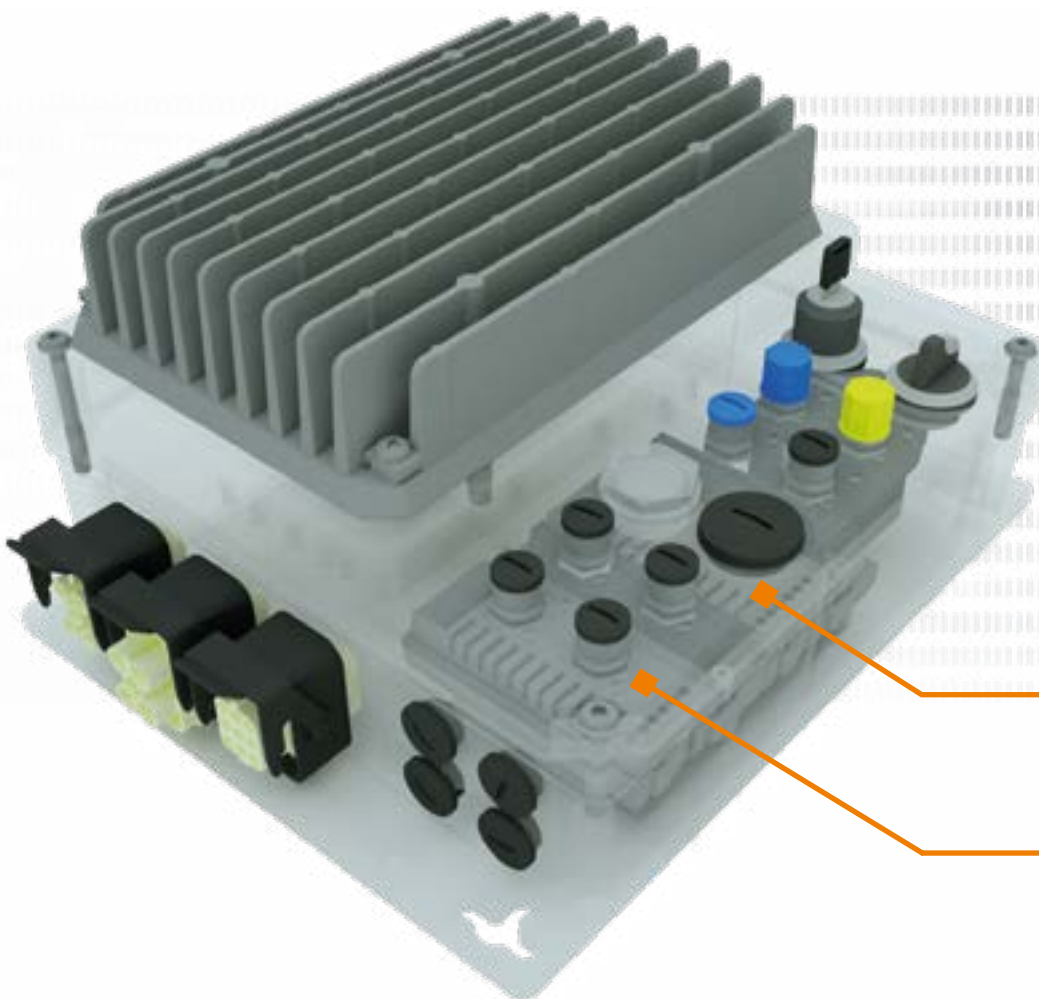
- Single colour
- Static

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.



Can be extended with a maximum of two further option modules (SK CU4)

# NORDAC *LINK* motor starter

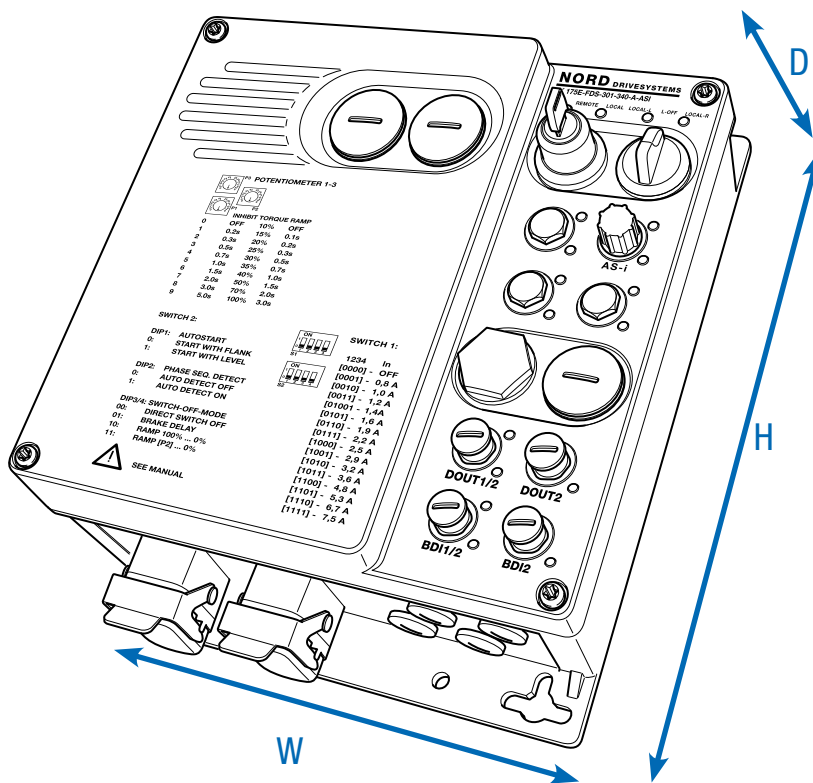
## 3~ 380 ... 500 V

Typical overload capacity	150 % for 9 s up to 170 s (adjustable (shut-down class 5, 10 A, 10))	Protective measures against	<ul style="list-style-type: none"> <li>▶ Mains phase failure</li> <li>▶ Motor phase failure</li> <li>▶ Flux monitoring</li> <li>▶ Motor over temperature (PTC)</li> <li>▶ Motor overload</li> <li>▶ Mains over/under voltage</li> </ul>
Energy efficiency class	IE2	Motor temperature monitoring	1 <sup>†</sup> Motor PTC / bi-metal switch
Motor starter efficiency	> 98 %	Leakage current	< 20 mA
Ambient temperature	-25 °C...+50 °C (S1)		
Protection class	IP65 NEMA Type 1		

Motor starter SK 155E-FDS... / SK 175E-FDS...	Nominal motor power		Nominal out- put current rms [A]	Line voltage/ Output voltage	Weight [kg]	(Overall)	Size
	[kW]	[hp]				dimensions H x W x D [mm]	
-111-340-B	up to 1.1	up to 1 1/2	3.2	3~ 380 V ... 500 V, -20 % / +10 %, 47 ... 63 Hz	approx.. 3	0	312 <sup>1</sup> x 243 x 104 <sup>2</sup>
-301-340-B	up to 3.0	up to 4	7.5		approx. 3	1	312 <sup>1</sup> x 243 x 104 <sup>2</sup>

<sup>1</sup> Without maintenance switch H=307 mm

<sup>2</sup> With key switch and key inserted D=125 mm





# NORDAC LINK FREQUENCY INVERTER

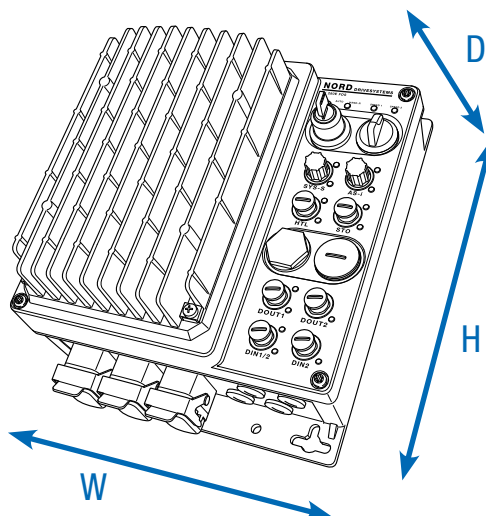
## 3~ 380 ... 500 V

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
Energy efficiency class	IE2
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 <sup>1</sup> IP55 devices of 2.2 kW and higher as well as devices <2.2 kW, with option -FANO <sup>1</sup> . NEMA Type 1
Regulation and control	Sensorless current vector control (ISD), linear V/f characteristic curve
Motor temperature monitoring	I <sup>2</sup> t Motor PTC / bi-metal switch
Leakage current	< 30 mA

<sup>1</sup> (heat sink with mounted fan)

Frequency inverters SK 2xxE-FDS...	Nominal motor power		Nominal out- put current rms [A]	Line voltage/ Output voltage	Weight [kg]	(Overall)	Size
	400 V [kW]	480 V [hp]				dimensions H x W x D [mm]	
-370-340-A	0.37	1/2	1.1	3 ~ 380...500 V, -20 % / +10 %, 47 ... 63 Hz	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 <sup>1</sup>	1
-151-340-A	1.5	2	4.0	3 ~ AC 0 V up to mains voltage	4.6	312 x 243 x 175 <sup>1</sup>	1
-221-340-A	2.2	3	5.5		4.8	312 x 243 x 175 <sup>1</sup>	1
-301-340-A	3.0	4	7.0		4.8	312 x 243 x 175 <sup>1</sup>	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	15.0	6.8	312 x 358 x 184	2	



<sup>1</sup> 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, handheld versions are also available. See also Accessories starting on page 165

	Type Designation Material No.	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 RS-485, 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: <a href="http://www.nord.com">www.nord.com</a>
	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. 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 

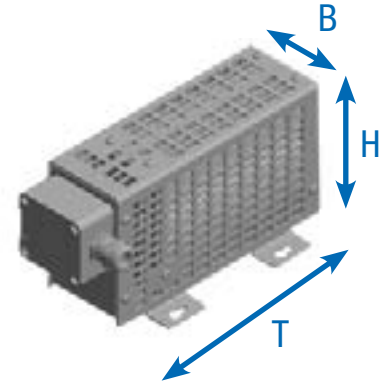
# Brake resistors for dynamic drive characteristics

## 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] <sup>1</sup>	(Overall) dimensions L x W x H [mm]
0,37 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.

<sup>1</sup> Once within 120 s,  
for a maximum duration of 1.2 s

## External braking resistors

Like internal braking resistors, external braking resistors are intended for applications with low braking energy. Unlike internal braking resistors, their nominal continuous power is fully available. External braking resistors cannot be retrofitted and must therefore be taken into account in the order. The attachment increases the frequency inverter's width by 44 mm.

Available on request



## 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 P <sub>n</sub> [W]	Power consumption <sup>1</sup> P <sub>max</sub> [kWs]
... 750-340-	400	100	1.0
... 151-340- bis ... 301-340-	400	100	1.0
... 401-340- bis ... 751-340-	200	200	2.0

<sup>1</sup> maximum once within 10s

# Communication interfaces

## Field bus extensions

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. Digital signals can alternatively be connected via the front M12 round plug connector (only M12 modules)	Baud rate: maximum 12 MBd  Protocol: DPV 0 and DPV 1  SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit
	SK CU4-PBR-C' 275 271 500	● ○ IP20			
CANopen®	SK CU4-CA0 275 271 001	● ○ IP20	2 digital inputs	Interface as gateway for direct connection of up to four devices to a CANopen® field bus. Digital signals can alternatively be connected via the front M12 round plug connector (only M12 modules)	Baud rate: maximum 1 MBaud  Protocol: DS 301 and DS 402  SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit
	SK CU4-CA0-C' 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. Digital signals can alternatively be connected via the front M12 round plug connector (only M12 modules)	Baud rate: maximum 500 kBaud  Profile: AC-Drive and NORD-AC  SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit
	SK CU4-DEV-C' 275 271 502	● ○ IP20			

Variant	Designation Material No.	Installation	Attached / separate Protection class	Number of inputs / outputs	Description	Remarks
	SK CU4-IOE2 275 271 007	●	○ IP20	2 <sup>2</sup> digital and 2 <sup>3</sup> 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 <sup>1</sup> 275 271 507	●	○ IP20		Alternative connection of digital signals via front M12 round plug connector (only M12 modules)	
	SK CU4-IOE 275 271 006	●	○ IP20	2 digital and 2 <sup>3</sup> 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 <sup>1</sup> 275 271 506	●	○ IP20			SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit













# Communication interfaces

## Industrial Ethernet extensions

Variant	Designation Material No.	Installation	Attached / separate	Protection class	Number of inputs / out- puts	Description	Remarks
Industrial Ethernet	SK CU4-ETH 275271027	●	○	IP20	2 digital inputs	Interface as gateway for direct connection of up to four devices to the Industrial Ethernet. Parameterisation may be used with a choice between the following dialects: EtherCAT, EtherNet/IP, PROFINET IO	Baud rate: max. 100 Mbaud, EtherCAT: CoE, PROFINET IO: Conformance class B and C
	SK CU4-ETH-C 275271527	●	○	IP20			





Variant	Designation Material No.	Installation Attached / separate	Protection class	Number of inputs / out- puts	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. Connection of the bus cable via the front M12 round plug connector (only TU4 modules).	Baud rate: maximum 100 MBaud, CoE (CAN over EtherCAT®), SK CU4 module: Derating (see data sheet) SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit																										
	SK CU4-ECT-C¹ 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. Connection of the bus cable via the front M12 round plug connector (only TU4 modules).	Baud rate: maximum 100 MBaud, SK CU4 module: Derating (see data sheet) SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit	SK CU4-EIP-C¹ 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. Connection of the bus cable via the front M12 round plug connector (only TU4 modules)	Baud rate: maximum 100 MBaud, SK CU4 module: Derating (see data sheet) SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit	SK CU4-POL-C¹ 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. Connection of the bus cable via the front RJ45 or M12 round plug connector (only TU4 modules).
 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. Connection of the bus cable via the front M12 round plug connector (only TU4 modules).	Baud rate: maximum 100 MBaud, SK CU4 module: Derating (see data sheet) SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit																										
	SK CU4-EIP-C¹ 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. Connection of the bus cable via the front M12 round plug connector (only TU4 modules)	Baud rate: maximum 100 MBaud, SK CU4 module: Derating (see data sheet) SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit	SK CU4-POL-C¹ 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. Connection of the bus cable via the front RJ45 or M12 round plug connector (only TU4 modules).	Baud rate: maximum 100 MBaud, Conformance class B and C, SK CU4 module: Derating (see data sheet) SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit	SK CU4-PNT-C¹ 275 271 515	● ○	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. Connection of the bus cable via the front M12 round plug connector (only TU4 modules)	Baud rate: maximum 100 MBaud, SK CU4 module: Derating (see data sheet) SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit																										
	SK CU4-POL-C¹ 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. Connection of the bus cable via the front RJ45 or M12 round plug connector (only TU4 modules).	Baud rate: maximum 100 MBaud, Conformance class B and C, SK CU4 module: Derating (see data sheet) SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit	SK CU4-PNT-C¹ 275 271 515	● ○	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. Connection of the bus cable via the front RJ45 or M12 round plug connector (only TU4 modules).	Baud rate: maximum 100 MBaud, Conformance class B and C, SK CU4 module: Derating (see data sheet) SK TU4 modules plus matching SK T14-TU-BUS / SK T14-TU-BUS-C connection unit																										
	SK CU4-PNT-C¹ 275 271 515	● ○	IP20																													

# 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 glands<sup>1</sup> 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. Typically, all cables<sup>2</sup> are shielded.

<sup>1</sup> Not for NORDAC *LINK*, NORDAC *ON*

<sup>2</sup> Except for mains connection/daisy chain cables

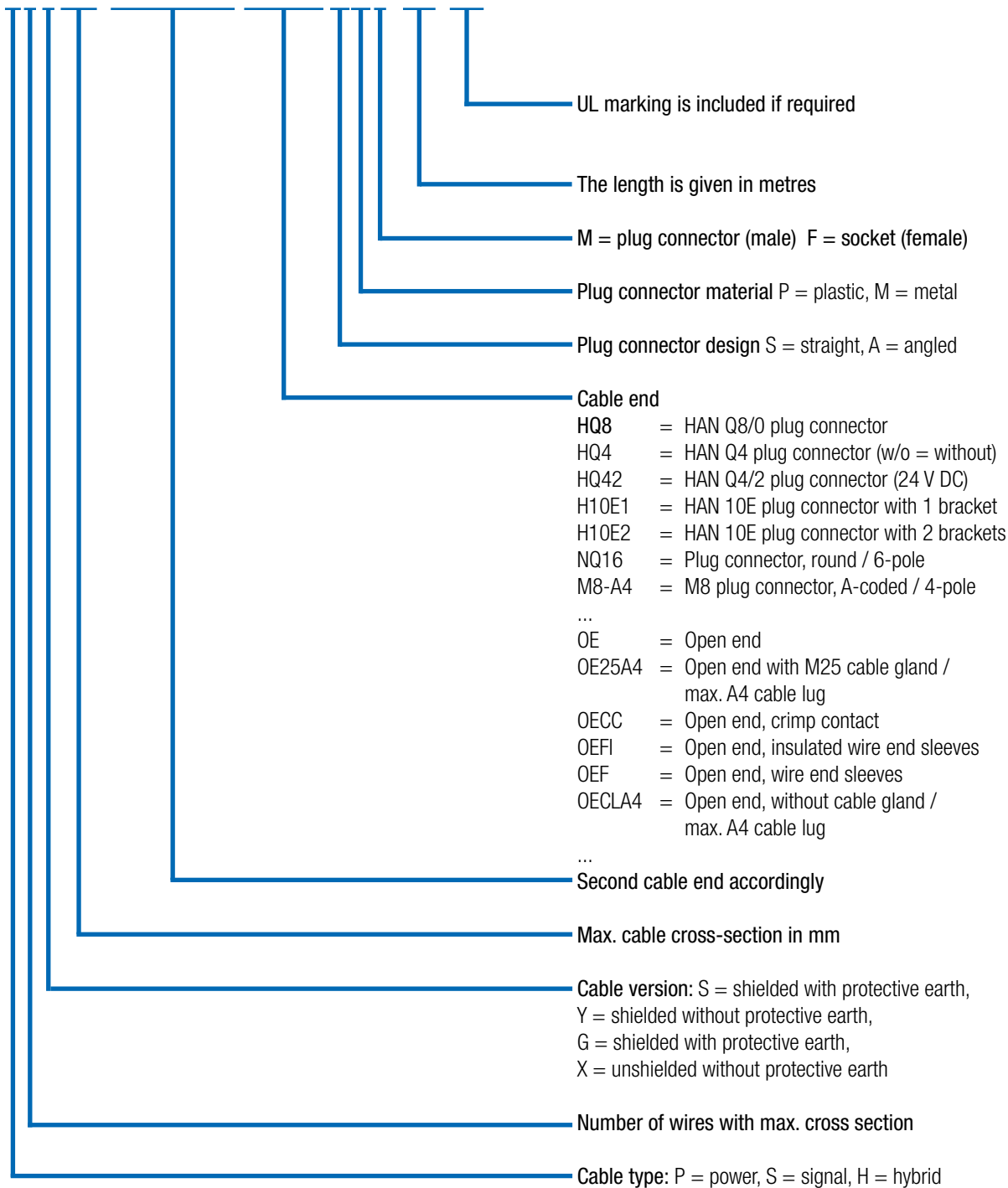


# Designation of pre-assembled cables

## Pre-assembled cables

- ▶ Cables for motor and frequency inverter connection
- ▶ Mains connection and signal cables
- ▶ Customised plug connectors and cable lengths

## SC H4G2.5 HQ8SMM H10E1SMF 1.5 UL



# 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.

### NORDAC LINK, FLEX, BASE, START

Designation	Motor power [kW]	Certification	Part number for length [m]		
			1.5	3	5
SC H4S2.5 HQ8SPM OE20A4 UL	0,12 - 0,37	EU / UL	275 274 800	275 274 801	275 274 802
SC H4S2.5 HQ8SPM OE25A4 UL	0,55 - 1,5	EU / UL	275 274 805	275 274 806	275 274 807
SC H4S2.5 HQ8SPM OE32A4 UL	2,2 - 3,0	EU / UL	275 274 825	275 274 826	275 274 827
SC H4S2.5 HQ8SPM OE32A5 UL	4,0	EU / UL	275 274 830	275 274 831	275 274 832
SC H4S4 HQ8SPM OE32A6 UL	5,5 - 9,2	EU / UL	275 274 835	275 274 836	275 274 837
SC H4S2.5 HQ8SPM H10E1SMF	0,12 - 4,0	EU	275 274 810	275 274 811	275 274 812

### NORDAC ON

Designation	Motor power [kW]	Certification	Part number for length [m]		
			1.5	3	5
SC H4S1 ST8SMM OE20A4 UL	63 – 71 IE1 - IE3	EU / UL	275 274 690	275 274 691	275 274 692
SC H4S1 ST8SMM OE20A4 UL WOB <sup>1</sup>	63 – 71 IE1 - IE3	EU / UL	275 274 617	275 274 618	275 274 619
SC H4S1 ST8SMM OE25A4 UL	80 – 90 IE1 - IE3 71 IE5+	EU / UL	275 274 695	275 274 696	275 274 697
SC H4S1 ST8SMM OE25A4 UL WOB <sup>1</sup>	80 – 90 IE1 - IE3 71 IE5+	EU / UL	275 274 621	275 274 622	275 274 623
SC H4S1 ST8SMM HQ8SMF UL	NORD Motorstecker „MS21“	EU / UL	275 274 685	275 274 686	275 274 687
SC H4S1.5 TEH51SVM TEH51SVF MBE <sup>2</sup>		EU / UL	in preparation	in preparation	in preparation

### Frequency inverter/Motor starter connection

### Motor connection

### Required motor option<sup>1</sup>



Open ends

ZKK



MS31 or MS31E

<sup>1</sup>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.

Designation	24 V DC supply	Certification	Part number for length [m]		
			1.5	3	5
SC P4G2.5 HQ4SPF OE	no	EU	275 274 840	275 274 841	275 274 842
SC P4GA14 HQ4SPF OE UL	no	UL		275 274 241	275 274 242
SC H4G4 HQ42SPF OE	yes	EU	275 274 845	275 274 846	275 274 847
SC H4GA12 HQ42SPF OE UL	yes	UL		275 274 246	275 274 247
SC H6G2.5 NQ16SPF OE UL <sup>1</sup>	yes	UL	275 274 218	275 274 219	275 274 220

<sup>1</sup> only NORDAC *ON*



## 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.

Designation	24 V DC supply	Certification	Part number for length [m]		
			1.5	3	5
SC P4G4 HQ4SPM HQ4SPF	no	EU	275 274 850	275 274 851	275 274 852
SC P4GA12 HQ4SPM HQ4SPF UL	no	UL		275 274 251	275 274 252
SC H4G4 HQ42SPM HQ42SPF	yes	EU	275 274 855	275 274 856	275 274 857
SC H4GA12 HQ42SPM HQ42SPF UL	yes	UL		275 274 256	275 274 257
SC H6G2.5 NQ16SPM NQ16SPF UL <sup>1</sup>	yes	UL	275 274 288	275 274 289	275 274 290

<sup>1</sup> only NORDAC *ON*





# Brake resistor cable / Control cables

## Product overview – Braking resistor cables

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

Designation	Certification	Part number for length [m]	
		2	3
SC P3S2.5 HQ2SPM OE	EU	275 274 881	275 274 899
SC P3SA14 HQ2SPM OE UL	UL	275 274 280	275 274 281



## 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.

Designation	Motors			Encoders <sup>1</sup>	Cable type	Control cable Length - Part No.
	IE1-3	IE4	IE5+			
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
SC S4Y0.25 M12-B4MM M12-A8SMF	●	○	○	IG12P - 19 651 501 IG22P - 19 651 511 IG42P - 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
SC S5S0.25 M12-A5SPM M12-A5SPF	○	●	○	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		
SC S5Y0.25 M12-A5SMM M12-A8SMF	○	●	○	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

- Available as standard
- Not available

<sup>1</sup> Further information about encoders can be obtained from motor catalogue M7000.

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