

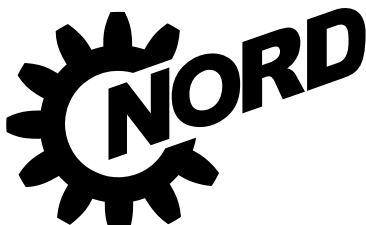
Intelligent Drivesystems, Worldwide Services

ENERGY-SAVING MOTOR STARTER WITH SOFT START AND REVERSING FUNCTION



EN

NORDAC START
MOTOR STARTER
SK 135E


DRIVESYSTEMS

NORDAC *START*

MOTOR STARTER SK 135E

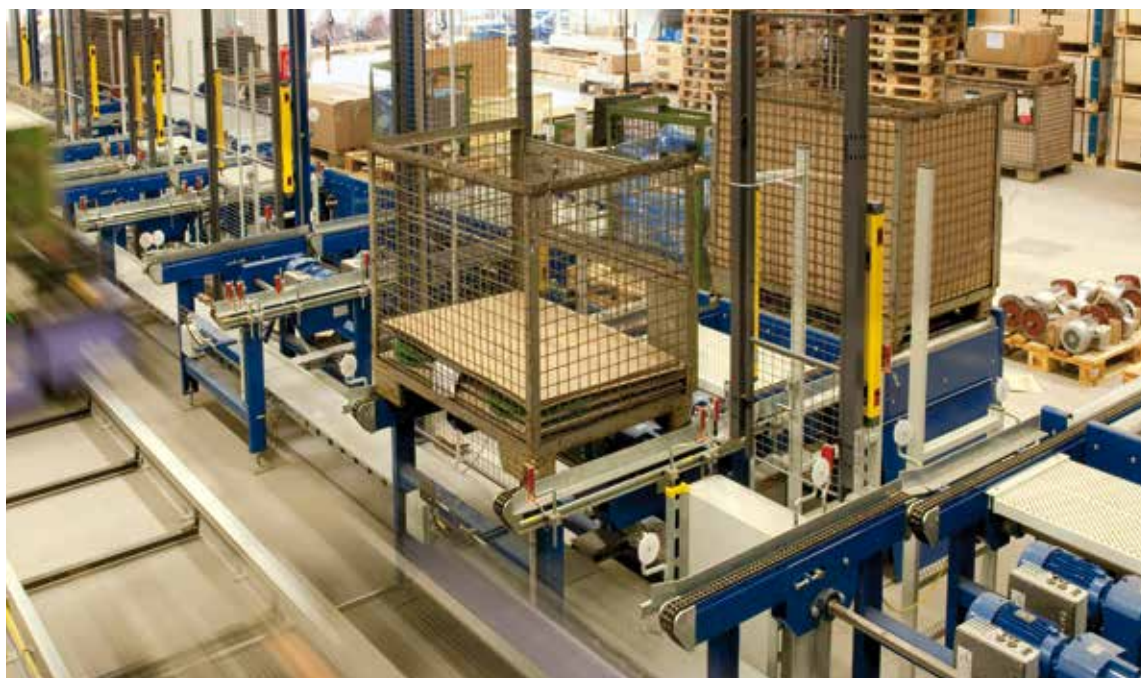
Motor starter with soft start and reversing function

Mains-powered electric motors are very widespread. They require low installation and commissioning effort. On the other hand, disadvantages include the high power consumption for the starting torque (up to 7 times the rated current for the motor), excessive mechanical loads on the gear unit and the system, as well as the frequently uncontrolled starting and stopping behaviour. Electronic starters are a simple and very economical solution to this problem. However, NORD devices are far more than simple current limiting "starters" for electric motors.

"three-in-one"

The NORDAC *START* SK 135E/SK 175E combines the 3 functions of a typical "electronic motor starter", which are known under the terms starter, reversing starter and gentle starter. The NORDAC *START* SK 135E/SK 175E provides comprehensive monitoring and protective functions (mains / motor/ self-monitoring) and also eliminates the need for a motor protection switch. It enables individual adaptations to the operating characteristics (starting / shut-down behaviour) and offers optional communication interfaces. A special feature is the variable mounting of the device. In confined spaces it has the advantage that the compact device can be easily used for operation close to the motor.

Many applications, including those in material handling, require electronic starting and stopping of the drive units. The NORDAC *START* SK 135E/SK 175E is the ideal solution in this case. Its versatility makes both motor starting functions and soft starting or reversing mode possible. Extensive monitoring functions provide protection from overheating, for example. Due to the I²t triggering characteristic, a motor protection switch is not required. The integrated line filter means that the NORDAC *START* SK 135E/SK 175E, when mounted on the motor, complies with the highest of EMC requirements.





- Configuration via DIP switches and potentiometers
- Integrated electronic brake rectifier
- Choice of different shut-down modes
- Leakage current < 20 mA
- Consistent parameter structure
- 2 digital inputs and outputs

- On-board AS bus interface (implemented as SK 175E-ASI)
PROFIBUS DP (implemented as SK 175E-PBR)
- System plug connectors (e.g. Harting HAN 10E)
- Variants for ATEX Zone 22 - 3D
- Various control options (switches, ParameterBox)
- 24 V mains unit

Optional



- Pre-defined shut-down modes
- Variable starting and shut-down ramps
- Boost function

Variable operating characteristics



- Integrated line filter
- Also ideal for applications in a domestic environment, due to compliance with Class B (for motor-mounting or motor cables up to 10 m), or Class A, for wall mounting with motor cable up to 100 m long
- Suitable for personal protection due to low leakage current (< 20 mA) for operation with all-current RCDs

Line EMC Filter Class B



- Commissioning via integrated DIP switches and potentiometer
- No programming knowledge required

Commissioning

NORD ELECTRONIC DRIVESYSTEMS

CENTRALISED AND DECENTRALISED DRIVE ELECTRONICS

NORDAC FREQUENCY INVERTERS

Advantages

- Scalable functionality – Flexible configuration and function
- Market-leading torques for all drive applications
- Simple commissioning and operation

Functions

- High precision regulation with current vector control
- Compatible with all common bus systems
- 4-quadrant operation
- PLC functionality for functions close to the drive unit
- Energy-saving function for partial load operation
- Control and parameterisation tools and simple parameter structure
- Integrated mains filter for compliance with EMC regulations
- Operation of asynchronous and synchronous motors
- Control and closed loop regulation
- POSICON – Integrated positioning mode and synchronisation
- STO and SS1 – Integrated functional safety
- Integrated brake rectifier for motor brake control

NORDAC PRO SK 500E



The frequency inverter for all drive applications: large power range and capability of extension of functionality with plug-in option modules. Heat is optimally removed thanks to the variable cooling concept.

Frequency inverters

- Power range up to 160 kW
- Control cabinet installation
- IP20

NORDAC FLEX SK 200E



Decentralised drive unit with versatile installation possibilities Scalable functionality and flexible configuration. Simple installation and maintenance through extensive plug-in capability and simple parameter transfer via EEPROM memory.

Frequency inverters

- Power range up to 22 kW
- Wall or motor installation
- IP55, IP66

NORDAC BASE SK 180E



Economical decentralised version for simple drive applications. Low installation costs as well as robust design for simple installation outside of the control cabinet.

Frequency inverters

- Power range up to 2.2 kW
- Wall or motor installation
- IP55, IP66, IP69K

NORDAC START SK 135E/SK 175E



Decentralised, wear-free electronic motor starter for all types of gentle starting. With integrated motor protection and reversing function for flexible integration into the system.

Motor starters

- Power range up to 7.5 kW
- Wall or motor installation
- IP55, IP66, IP69K

Frequency inverters

- Power range up to 7.5 kW
- Field installation
- IP55, IP65

The field distributor for flexible, decentralised installation. Flexible configuration and function - freely configurable according to requirements and the application. Available as frequency inverters and motor starters. Fast commissioning through high level of plug-in capability. Simple servicing of the system through integrated maintenance switch and local manual control facility.



NORDAC LINK
SK 250E

Motor starters

- Power range up to 3 kW
- Field installation
- IP65



NORDAC LINK
SK 155E

NORD DRIVESYSTEMS COMPLETE DRIVE SOLUTIONS FROM A SINGLE SOURCE

The Drive Solutions

The Motors

The Gear Units

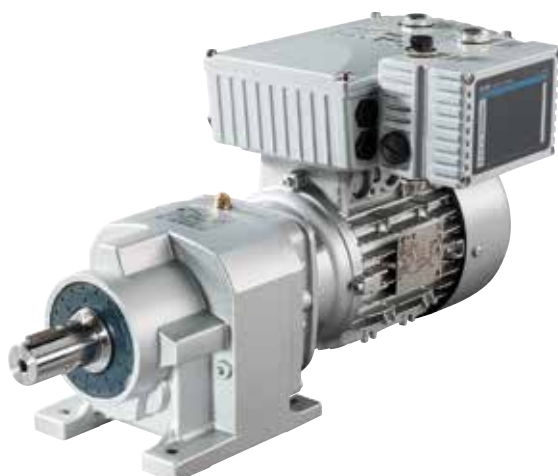
The Drive Electronics

- High efficiency gear units
- Energy efficient motors
- Frequency inverters and motor starters for installation in the field or in control cabinets

NORDAC *START* MOTOR STARTER SK 135E

EXTENSIONS

Name	Description	Voltage range	Inputs/ outputs	Order number
SK CU4-24V-123	Internal customer unit to generate the internal control voltage (24 V) from the available supply voltage	100 V - 240 V	1x analogue input	275 271 108
SK CU4-24V-140		380 V - 500 V	1x analogue input	275 271 109
SK CU4-REL	Internal customer unit with relay changeover contacts		2x digital outputs (relay output)	275 271 011
SK TU4-24V-123 SK TU4-24V-123-C	External technology unit to generate the internal control voltage (24 V) from the available supply voltage	100 V - 240 V	1x analogue input	275 281 108 (IP55) 275 281 158 (IP66)
SK TU4-24V-140 SK TU4-24V-140-C		380 V - 500 V	1x analogue input	275 281 109 (IP55) 275 281 159 (IP66)
SK TI4-TU-NET SK TI4-TU-NET-C	Connection units required for technology units			275 280 100 (IP55) 275 280 600 (IP66)
SK-TIE4-WMK-TU	Wall mounting kit for technology units			275 274 002 (IP66)
SK TIE4-SWT	Switch L-0-R			275 274 701



NORDAC *START* MOTOR STARTER SK 135E

SYSTEM PLUG CONNECTORS

	Name	Description	Order number
Power	SK TIE4-HAN-Q5	Power in/out (HANQ5)	275 274 110
	Other versions available on request		
Bus system	SK TIE4-M12-ASI	AS interface (M12)	275 274 502
	SK TIE4-M12-ASI-AUX	AS interface (AUX, M12)	275 274 513
	SK TIE4-M12-PBR	Profibus (M12)	275 274 500
Control signals	SK TIE4-M12-INI	Initiator (M12)	275 274 503
	SK TIE4-M12-POW	24 V supply (M12)	275 274 507
	SK TIE4-M12-M16	Adapter from M12 to M16	275 274 510

The screw connections on the respective adapter unit can be fitted with system connectors for power, motor output, control and bus signals.

**Flexibility through
plug connectors**

NORDAC *START* MOTOR STARTER SK 135E

CONTROL BOXES

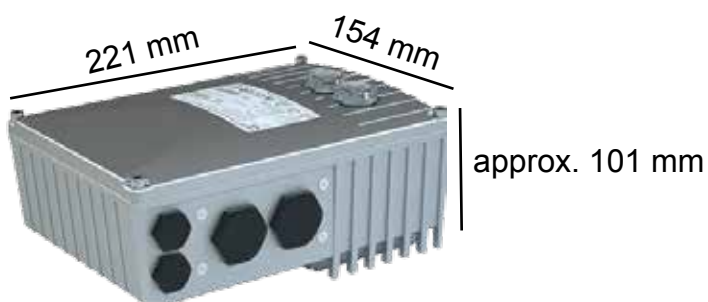


Name	Description	Equipment	Order number
SK CSX-3H SK CSX - 3E	Operating panel for easy and fast operation.	4-digit, 7-segment display	275 281 013 Handheld (IP54) 275 281 413 Switching cabinet (IP54)
SK PAR-3H SK PAR - 3E	ParameterBox: Convenient control panel for text-controlled commissioning, parameterisation and control of the device. 5 data sets can be stored. Direct connection to the PC via USB possible (Handheld only)	Multi-language plain text display	275 281 014 Handheld (IP54) 275 281 414 Switching cabinet (IP54)
SK TU4-MSW SK TU4-MSW-C	Service/repair switch black lockable	Power switch	275 281 123 (IP55) 275 281 173 (IP66)
SK TI4-TU-MSW SK TI4-TU-MSW-C	Connection unit required for the maintenance switch technology unit		275 280 200 (IP55) 275 280 700 (IP66)
SK-TIE4-WMK-TU	Wall mounting kit for technology units		275 274 002 (IP66)

NORDAC START MOTOR STARTER SK 135E

TECHNICAL DATA

Function		Specification	
Starter type SK 135E/SK 175E		-301-340-A	-751-340-A
Power	[kW]	up to 3.0	up to 7.5
	[hp]	up to 4.0	up to 10.0
Input / Output voltage		3~ 200 V ... 500 V, -10 % / +10 %, 47 ... 63 Hz	
Typical input/output current 3~rms[A]		7.5	16
Standard		<ul style="list-style-type: none"> integrated line filter Class C1, for motor-mounting or 10 m cable length for wall-mounting Class C2 for wall-mounting with motor cable length up to 100 m low leakage current (< 20 mA) consistent and user-friendly parameter structure 	
Typical Overload capacity		150 % for 120 s up to 480 s (adjustable)	
Protective measures against		overtemperature, overvoltage/undervoltage, overload	
Motor temperature monitoring		Temperature sensor (PTC), temperature monitor (bimetal), I ² t- motor	
Standard interfaces		RS 232 (Commissioning and diagnosis), 2x DIN, 2xDOUT	
Ambient temperature		-25°C...+50°C (S1- 100 % duty cycle), -25°C... +60°C (S3 - 70 % duty cycle 10 min)	
Version		Motor mounted, wall mounted	
Protection class		IP55, optionally IP66 or IP69K IP66 measures: <ul style="list-style-type: none"> Coated aluminium components Coated PCBs Low pressure test 	

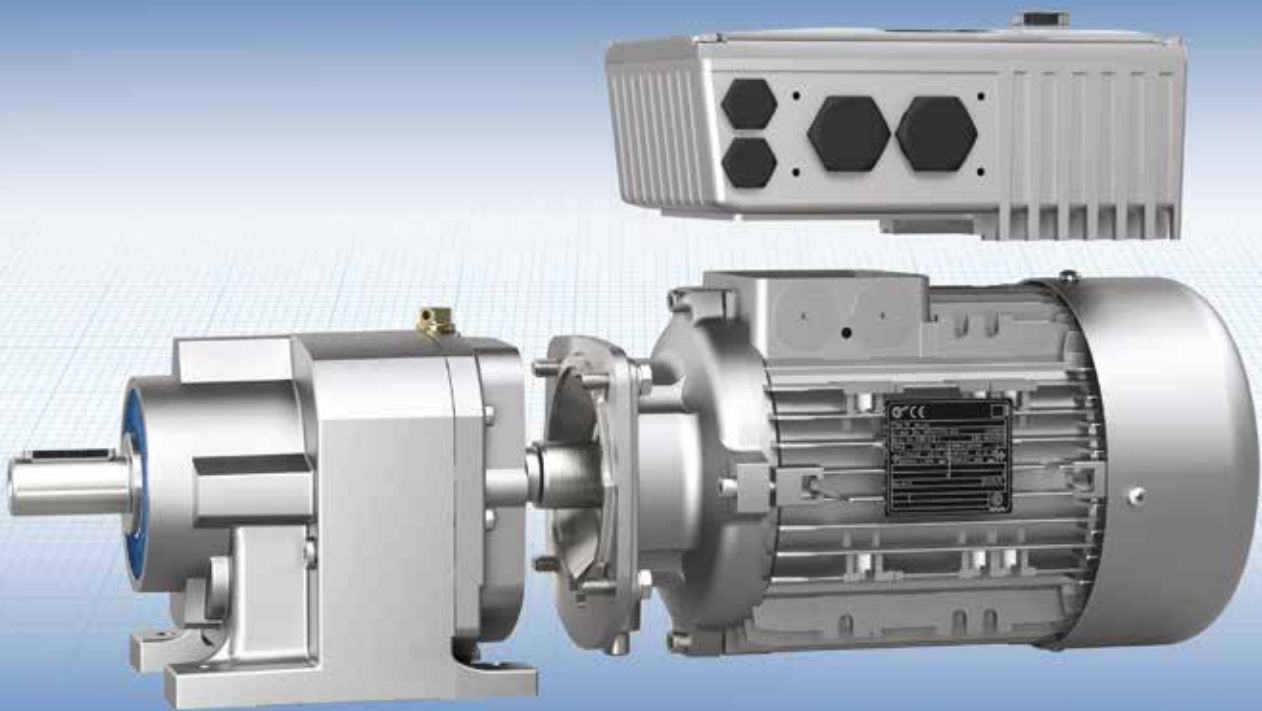


NORD DRIVESYSTEMS

COMPLETE DRIVE SYSTEMS FROM A SINGLE SOURCE

DER ANTRIEB

■ Reliable ■ Flexible ■ Global



The Gear Unit

- Unicase Housing
- Quiet running
- High power density

The Motor

- High efficiency
- Global standards
- All operating conditions

The Drive Electronics

- Compact design
- Easy to start up
- Configurable

Wide power range – Versatile complete solutions – High overall efficiency



Headquarters and Technology Centre in Bargteheide, close to Hamburg

Mechanical products	Electrical products	Electronical products
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Gear units



Motors



Inverters, motors starters and field distribution systems



Innovative drive solutions for more than 100 branches of industry



Gear unit production



Motor production



Inverter production

7 state-of-the-art production plants produce gear units, motors and inverters also for complete drive solutions from a single source.



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Subsidiaries and sales partners in 89 countries on 5 continents provide local stocks, assembly, production, technical support and customer service



More than 3,300 employees throughout the world create customer oriented solutions

NORD DRIVESYSTEMS Group

Headquarters and Technology Centre
in Bargteheide, close to Hamburg

Innovative drive solutions
for more than 100 branches of industry

Mechanical products
parallel shaft, helical gear, bevel gear and worm gear units

Electrical products
IE2/IE3/IE4 motors

Electronic products
centralised and decentralised frequency inverters,
motor starters and field distribution systems

7 state-of-the-art production plants
for all drive components

Subsidiaries and sales partners
in 89 countries on 5 continents
provide local stocks, assembly, production,
technical support and customer service

More than 3,300 employees throughout the world
create customer oriented solutions

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