Intelligent Drivesystems, Worldwide Services

THE VARIABLE SOLUTION FOR ALL APPLICATIONS

EN

NORDAC *LINK* FIELD DISTRIBUTOR

FREQUENCY INVERTERS AND MOTOR STARTERS

NORD® DRIVESYSTEMS

NORDAC *LINK*
FIELD DISTRIBUTOR

"In general, conveyor technology and intralogistics require drive control systems which can be simply installed and which are easily accessible during operation and 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 1
up to 3.0 kW

Frequency inverter
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 adjustment **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 (brake 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 diagnostics 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**

THE ENTIRE TEAM

ALL DEVICE VERSIONS AT A GLANCE

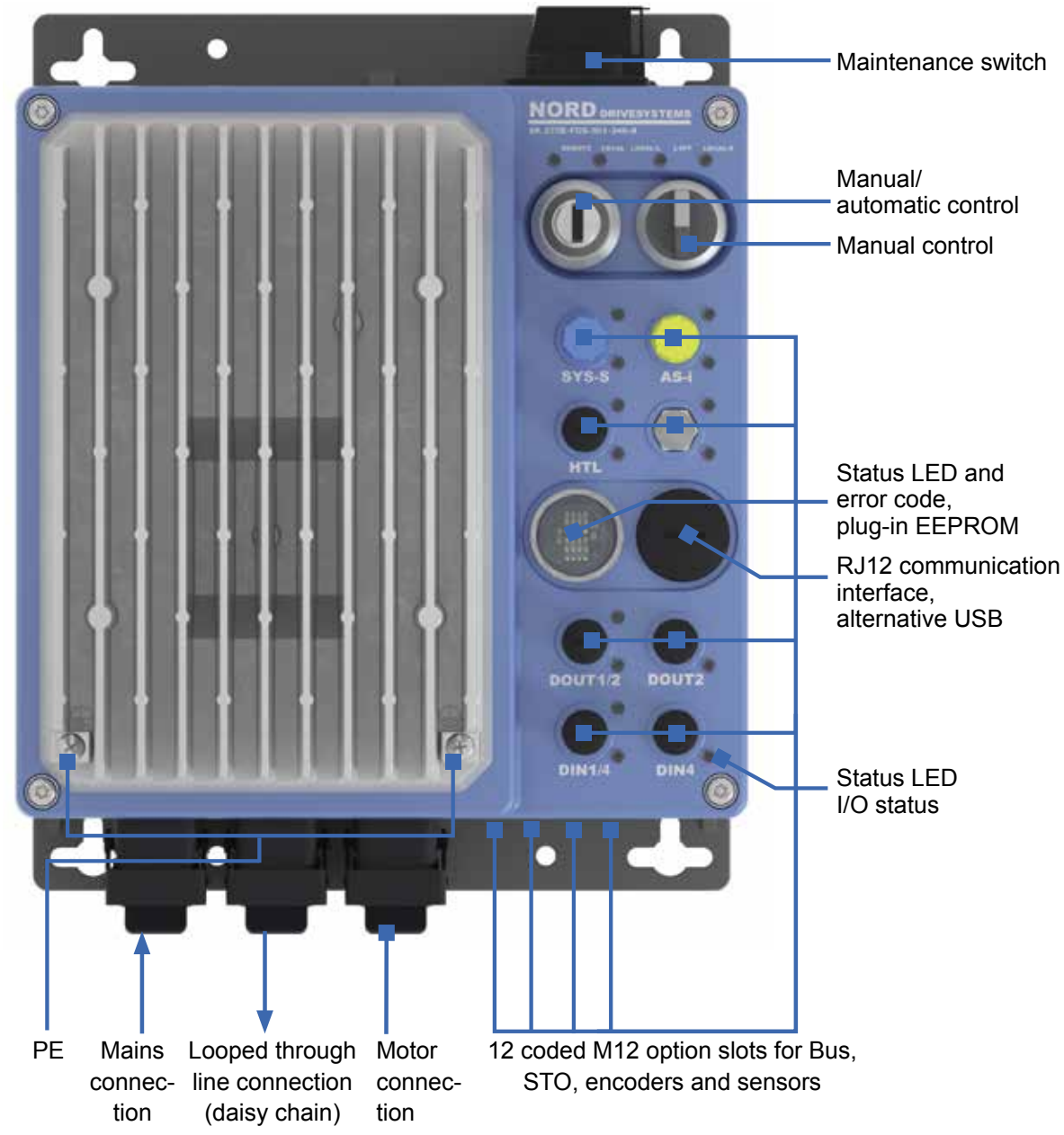
		SK 155E-FDS	SK 175E-FDS	SK 250E-FDS	SK 260E-FDS	SK 270E-FDS	SK 280E-FDS
		Motor starters 0.55 - 3.0 kW		Frequency inverters 0.55 - 7.5 kW			
Basic functions	Plug connection of mains, motor and control cables	✓		✓			
	Energy bus - loop-through of mains supply cables	❍		❍			
	Repair/maintenance switch	❍		❍			
	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			✓			
	EMC performance	Class A up to max. motor cable length 20 m		C2 up to max. motor cable length 10 m [1]			
	Drive unit monitoring function, including motor monitoring, motor thermistor evaluation	✓		✓			
	Reversing function		✓	✓			
	Process controller / PI controller			✓			
	Plug-in parameter storage module (EEPROM)			✓			
	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]	✓		✓			
Options	All common field bus systems			❍	❍	❍	❍
	Brake management for mechanical holding brake	❍		❍			
	Hoist and 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 brake 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 0.55 - 3.0 kW		Frequency inverters 0.55 - 7.5 kW			
Number of digital inputs	3 (+2 sensor inputs for Bus)[2]		5+2[1,2]			
Number of analogue inputs			2[1]			
Number of digital outputs	2		2			
CANopen			❍			
HTL			❍			

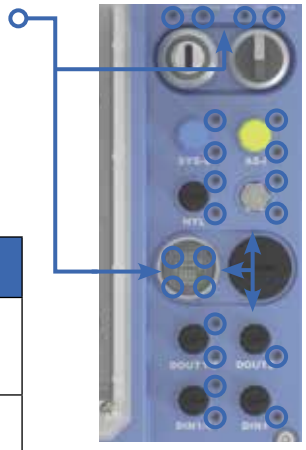
[1] Alternatively, the analogue inputs can also be used as digital inputs (not PLC-compatible).
[2] If necessary, individual inputs can be defined at the factory by the use of certain optional modules.



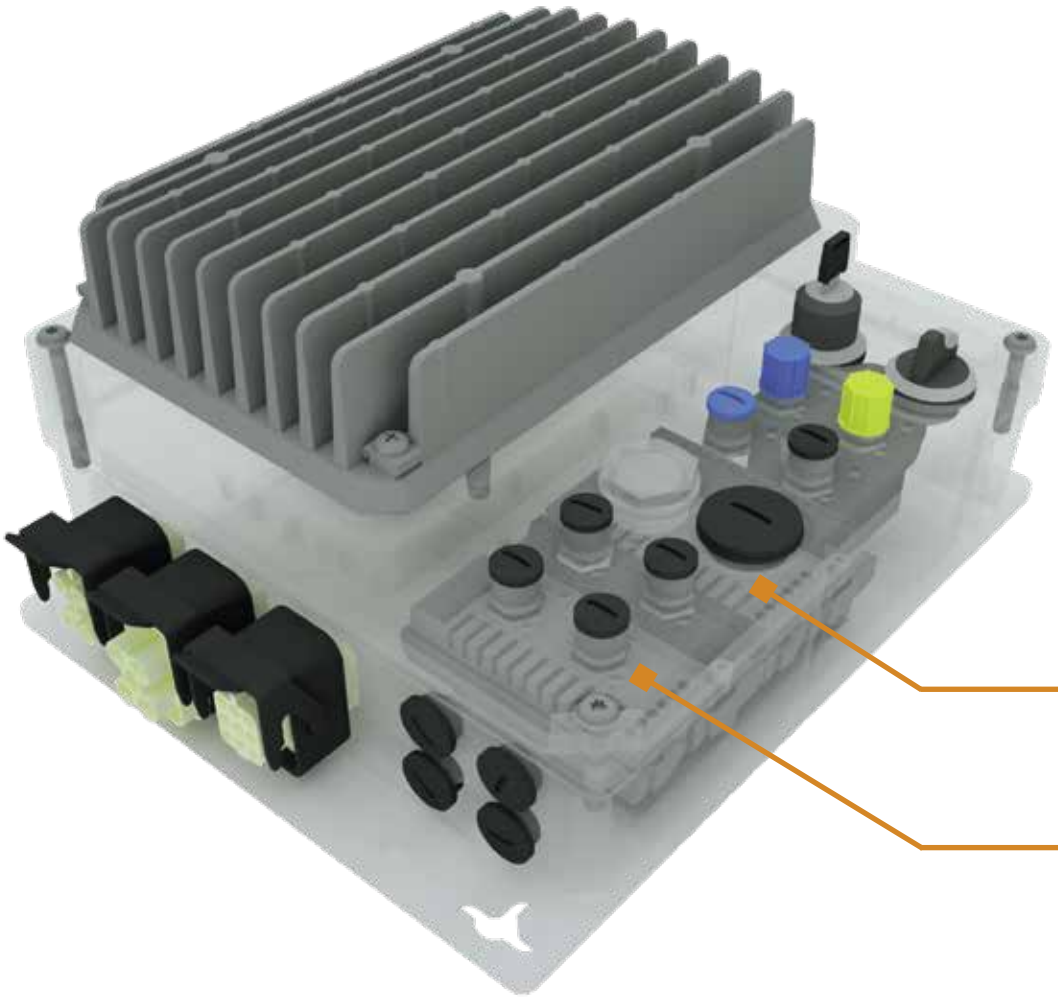
LED- STATUS INDICATORS
USE/MEANING

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.



LED indicators	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 function modules (SK CU4)

NORDAC *LINK* MOTOR STARTER

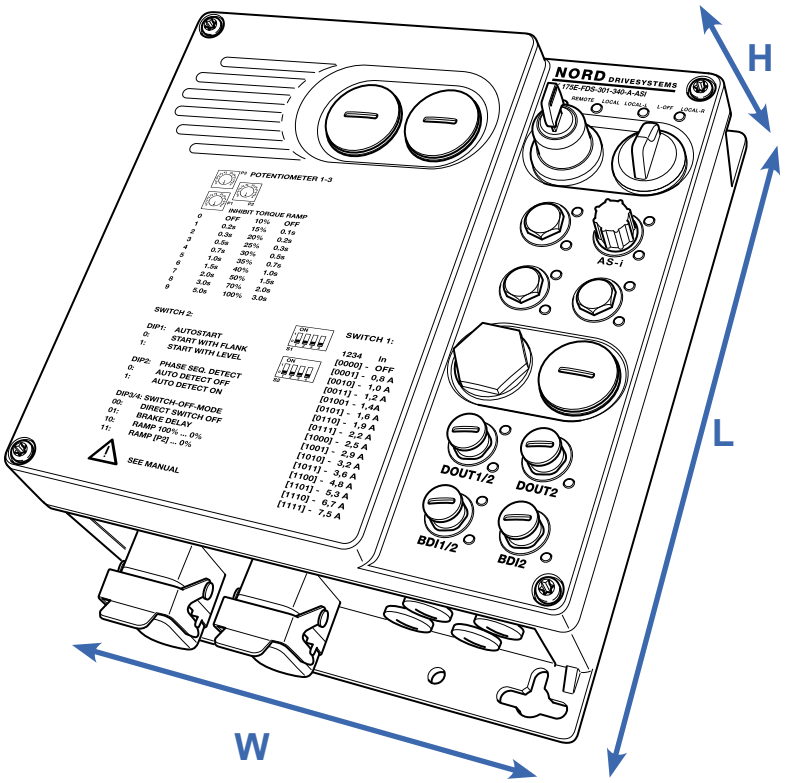
3~ 380 ... 500 V

Typical overload capacity	150 % for 9 s up to 170 s (adjustable (shut-down class 5, 10 A, 10))
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
Integrated Class A line filter	for wall mounting with motor cable length up to 20 m
Leakage current	< 20 mA

Motor starters SK 155E-FDS... / SK 175E-FDS...	Nominal motor power		Nominal output current rms [A]	Mains voltage / Output voltage	Weight [kg]	Dimensions L x W x H [mm]
	[kW]	[hp]				
-301-340-B	up to 3.0	up to 4	7.5	3~ 380 V … 500 V, -20 % / +10 %, 47 ... 63 Hz	approx. 3	312[1] x 243 x 104[2]

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



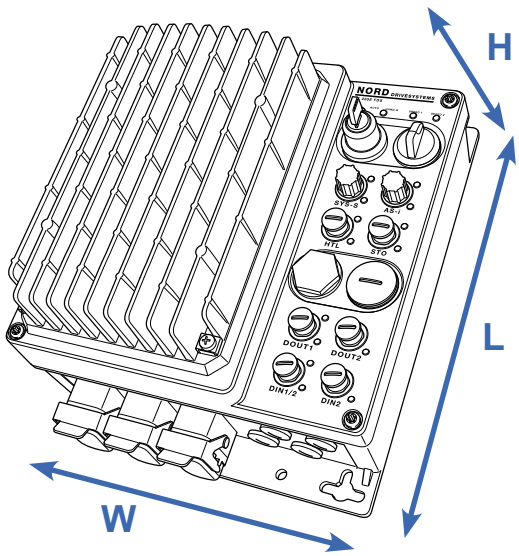
NORDAC *LINK* FREQUENCY INVERTER

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 FIs up to 1.5 kW However not with -FANO option[1] IP55 inverters 2.2 kW and above as well as inverters <2.2 kW, -FANO option[1]
Regulation and control	Sensorless current vector control (ISD), linear V/f characteristic
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		Nominal output current rms [A]	Line voltage/ Output voltage	Weight [kg]	Dimensions L x W x H [mm]	Size
	400 V [kW]	480 V [hp]					
-550-340-A	0.55	3/4	1.7	3 ~ 380...500 V, -20 % / +10 %, 47 ... 63 Hz 3 ~ AC 0 V up to mains voltage	4.6	312 x 243 x 175[1]	1
-750-340-A	0.75	1	2.3		4.6		
-111-340-A	1.1	1 1/2	3.1		4.6		
-151-340-A	1.5	2	4.0		4.6		
-221-340-A	2.2	3	5.5		4.8		
-301-340-A	3.0	4	7.0		4.8		
-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		
-751-340-A	7.5	10	15		6.8		



[1] Inverters up to 1.5 kW power, without -FANO option
(optional fan in heat sink) H=155

INTERFACES FOR
OPERATION, PARAMETERISATION AND COMMUNICATION

Operation and parameterisation

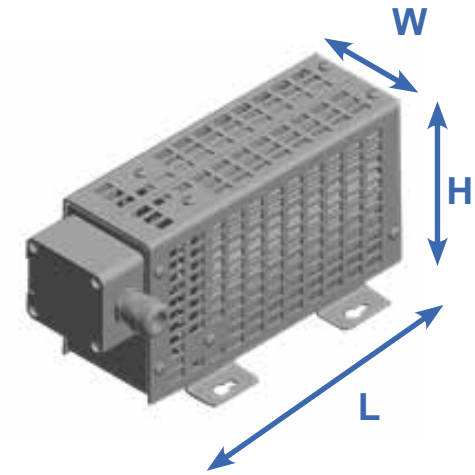
Optional modules with up to 14 languages for displaying status and operational indications, parameterisation and operation of the frequency inverter. In addition to variants for direct mounting on the inverter or installation in a control cabinet door, handheld versions are also available.

Type Designation Material No.	Description	Remarks
ParameterBox SK PAR-3E 275 281 414	Suitable for control and parameterisation, LCD screen (illuminated), plain text display in 14 languages, direct control of up to 5 devices, memory for 5 device data sets, convenient control keypad, for installation in a control cabinet door.	Connection for data exchange with NORDCON on a PC via RS-232 (USB 2.0), including 1 m connection cable, 4.5 … 30 V DC/1.3 W Supply e.g. directly via the frequency inverter Control cabinet installation
SimpleControlBox SK CSX-3E 275 281 413	Suitable for control and parameterisation, 4-digit, 7-segment display, direct control of a frequency inverter, convenient control keypad, for installation in control cabinet doors.	Electrical data: 4.5 … 30 V DC / 1.3 W, Supply e. g. directly via the frequency inverter Control cabinet installation
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. 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 brake 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]	L x W x D [mm]
... 1.1kW	SK BRW5-1-300-225 278 281 070	300	225	4	245 x 120 x 123
1.5 kW ... 7.5 kW	SK BRW5-2-150-450 278 281 071	450	150	8	405 x 120 x 123
Temperature monitoring for SK BRW5 resistors integrated (2 terminals 4 mm)		Bimetallic switch as opener			

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

Internal brake 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 a explosive atmospheres.

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_n [W]	Power consumption[1] P_{max} [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

NORD DRIVESYSTEMS Group

Headquarters and Technology Centre
in Bargteheide, near 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

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