GETRIEBEBAU NORD
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NORD DRIVESYSTEMS

SK CU4-24V-140-B

Part number: 275 271 109

Mains unit

NOTICE

Validity of this document

This document is only valid in combination with the operating instructions for the relevant electronic drive technology and under strict compliance with the safety and warning instructions which they contain. Safe commissioning of this module and the electronic drive technology depends on the availability of this information.

Scope of delivery

1 x	Module	**SK CU4-24V-140-B**
1 x	Mains voltage cable set	brown / black* * incl. fuse (5A slow-acting)
1 x	24 VDC cable set	brown / blue
1 x	Connection cable (analogue signal)	black
1 x	Burden resistor	500 Ω
2 x	Connecting screws	M4 x 20, cross-head

Field of use

Mains unit for use in a decentralised electronic drive technology frequency inverter. The voltage / frequency converter which is integrated into the module enables conversion of analogue signals from a potentiometer into a digital pulsed signal. This pulsed signal can be interpreted as an analogue signal by certain digital inputs of the drive electronics.

Technical data

Temperature range	-25°C … 50 °C
Temperature class	Class 3K3

Vibration resistance	3M7
Protection class	IP20

Designation	**Terminal**	**Data**
Module power supply	L1 + L2	380 V AC … 500 V AC
Output voltage (load capacity)	x [1] + 40	24 VDC ± 10 % (≤ 420 mA)
Analogue input - reference voltage	11	10 VDC ±0.2 V, ≤ 5 mA (output)
Analogue input	12 + 14	Resolution: 8 Bit, precision: 0.2 V [2]
Frequency output	B1	PLC-compatible as per EN 61131-2 Low: 0 V, High: 24 V Clock frequency: approx. 1 – 32 kHz

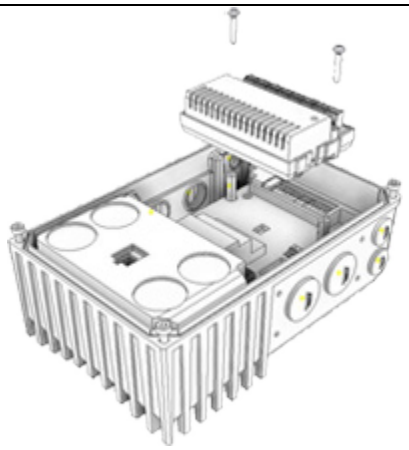
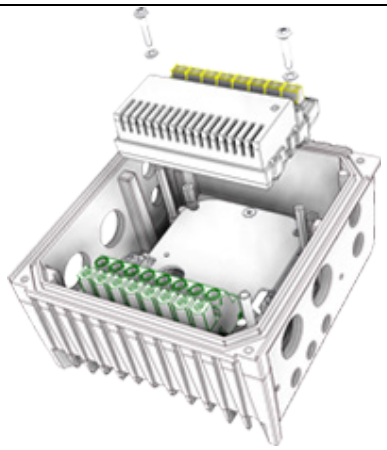
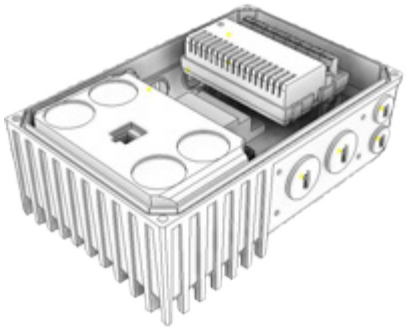
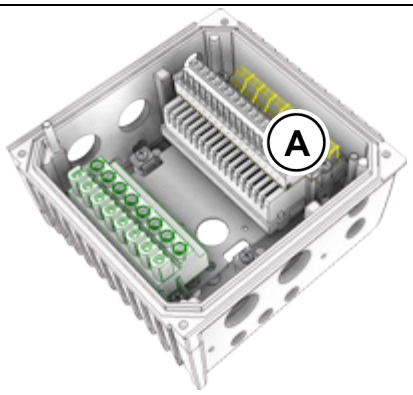
1) Depending on the frequency inverter version: SK TU4: x = Terminal 43, SK CU4: x = Terminal 44

2) For connecting a potentiometer (5 – 10 kΩ). A 500 Ω burden resistor (enclosed) must be used for the evaluation of 0/4 – 20 mA signals

Installation

Installation location	In defined option slot inside the frequency inverter (SK 1xxE, 2xxE)
Fastening	with screw fastenings

Installation steps (example illustration)

	SK 1xxE	SK 2xxE *)
1.		
2.		

*) Before carrying out installation step 1 it may be necessary to remove the control terminal bar (A),
The control terminal bar (A) must be fitted after installation step 2.

Connections

Terminals	Screw terminals	1 terminal bar with 16 connections, (5 mm spacing)
Cable cross section	0.14…2.5 mm	AWG 14-26
PE connection	Via device	Via screws for installation in the device

Control terminal details

Labelling, Function

AIN: Analogue input
10 V: Reference voltage for AIN
24 V: Control voltage (output)
GND: Reference potential for digital signals
AGND: Reference potential for analogue signals

FOUT: Digital output (DO): Pulse output
ON L/R: Digital output (DO): Enable L/R
L: Mains connection for a phase
PE: Earth

Connections, Functions

SK CU4-24V-…

Labelling	Function	
PE	PE	~ Mains potential level
PE	PE	
L2	2nd Phase	
L1	1st Phase	
40	GND	24 V DC potential level
B1	FOUT	
12	AGND	
14	AIN1	
11	10 V	
40	GND	
44	24 V	
40	GND	
44	24 V	

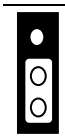
Compliance with the radio interference class can only be ensured if the mains filter is active (jumper plugged into the upper position).

In the event of use in non-earthed networks (IT network), the mains filter must be deactivated.

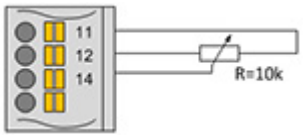
To do this, the jumper must be transferred from the top to the bottom.

Jumper plugged in at top position → Mains filter active

(Factory setting)



Jumper plugged in at bottom position → Mains filter inactive

Meaning, Functions		Description / Technical data		
Terminal			Parameter	
No.	Designation	Meaning	No.	Function of factory setting
Analogue inputs		***Only in combination with SK TU4-24V-…*** Connection of an analogue signal (5-10 kΩ potentiometer, external control unit or similar)		
		Resolution 8Bit *Accuracy* 0.2 V V= 0 …10 V I= 0/4 … 20 mA *Burden resistor* (500 Ω) enclosed	*+ 10 V Reference voltage:* 5 mA not short-circuit resistant 	
11	10V REF	+ 10 V Reference voltage	-	-
12	AGND	Analogue reference potential GND	-	-
14	AIN1+	Analogue input 1	-	-
Control voltage		For the supply of frequency inverters and accessories with a 24 V control voltage		
		24 V DC ± 10 % 420 mA (total) Short circuit and limited excess temperature or overload monitoring available.	Can also be used as an input (in this case, do not connect L1 and L2) if the module is only to be used as a voltage/frequency converter (for connecting a potentiometer).	
44	24V	Voltage output	-	-
40	GND / 0V	Reference potential GND	-	-
Digital outputs		Digital signals for controlling an electronic drive device		
		PLC-compatible as per EN61131-2 Low: 0 V, High: 24 V Clock frequency: ~1 – 32 kHz	Pulses for evaluation of the digital input functions of an SK 2xxE frequency inverter, size 1 - 3 P420 [-02]/[-03] = 26/27, → Analogue meaning P400 [-06]/[-07].	
B1	FOUT	Frequency output	P400/P420	-
40	GND	Reference potential GND	-	-
Mains connection		Mains voltage connection		
		Mains connection, 100 - 240 V or 380 - 500 V, depending on the module		
L1	L1	Mains supply 1 Phase	-	-
L2	L2/N	Mains supply 2 Phase / N	-	-
PE	PE	PE, Earth	-	-

Further documentation (www.nord.com)

Document	Name
BU 0135	Motor starter manual SK 135E, SK 175E
BU 0180	Frequency inverter manual SK 180E, SK 190E

Document	Name
BU 0200	Frequency inverter manual SK 2xxE