GETRIEBEBAU NORD
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SK CU4-REL-POW

Part number: 275 271 012

Setpoint converter

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 supply

1 x	Module	**SK CU4-REL-POW**
1 x	Cable set for digital signals	black / white / blue
1 x	Cable set for 24 VDC + analogue signals	brown / blue /grey /green
1 x	Connection cable (10 V reference voltage)	red
2 x	Connecting screws	M4 x 20, cross-head

Field of use

Setpoint converter unit for use in a decentralised electronic drive technology frequency inverter. This module enables the conversion of bipolar signals into unipolar analogue signals. With the aid of digital signals it is also possible to control the coupling relays which are integrated into the module. The coupling relays are implemented as converters.

One potential level is useable for all analogue and digital signals together.

Function description

The module must be supplied with 24 VDC.

Analogue signals:

Bipolar analogue signals (-10 V … +10 V) must be connected to the input terminals of the module. The signal which are converted to 0…10 V must be obtained from the analogue outputs and connected to a frequency inverter. In order to ensure the function of the analogue signal converter, the 10 VDC reference voltage of the frequency inverter must be wired to the reference potential of the setpoint source(s) of the module.

Digital signals:

Two coupling relays are integrated into the module. These are controlled via the digital outputs of the frequency inverter and can be used as openers (NC) or closers (NO) according to their connection.

Technical data

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

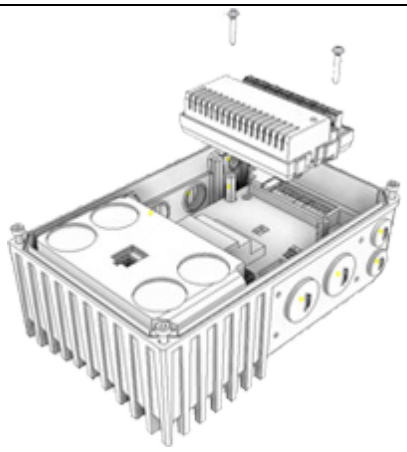
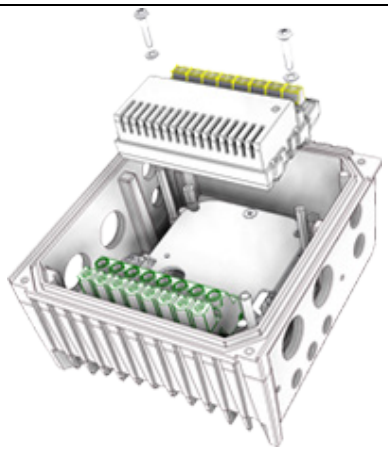
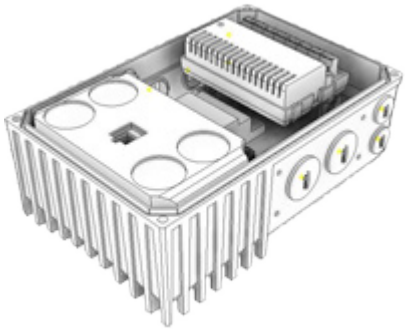
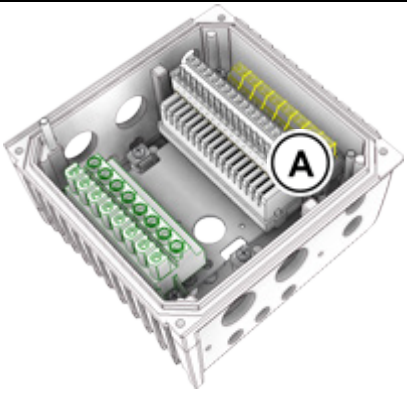
Vibration resistance	3M7
Protection class	IP20

For details of the electrical data please refer to the descriptions of the connections (🕮 Section "Control terminal details").

Installation

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

Installation steps

	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

10V REF:	Reference voltage (input)
24 V:	Control voltage (input)
AGND/0V:	Reference potential for signals
AIN:	Analogue input
AOUT:	Analogue output
DIN:	Digital input
R:	Relay

Connections, Functions

SK CU4-REL

Labelling	Function	
R21	Relay 2 basis	Digital / relay
R22	Relay 2, NC	
R24	Relay 2, NO	
R11	Relay 1 basis	
R12	Relay 1, NC	
R14	Relay 1, NO	
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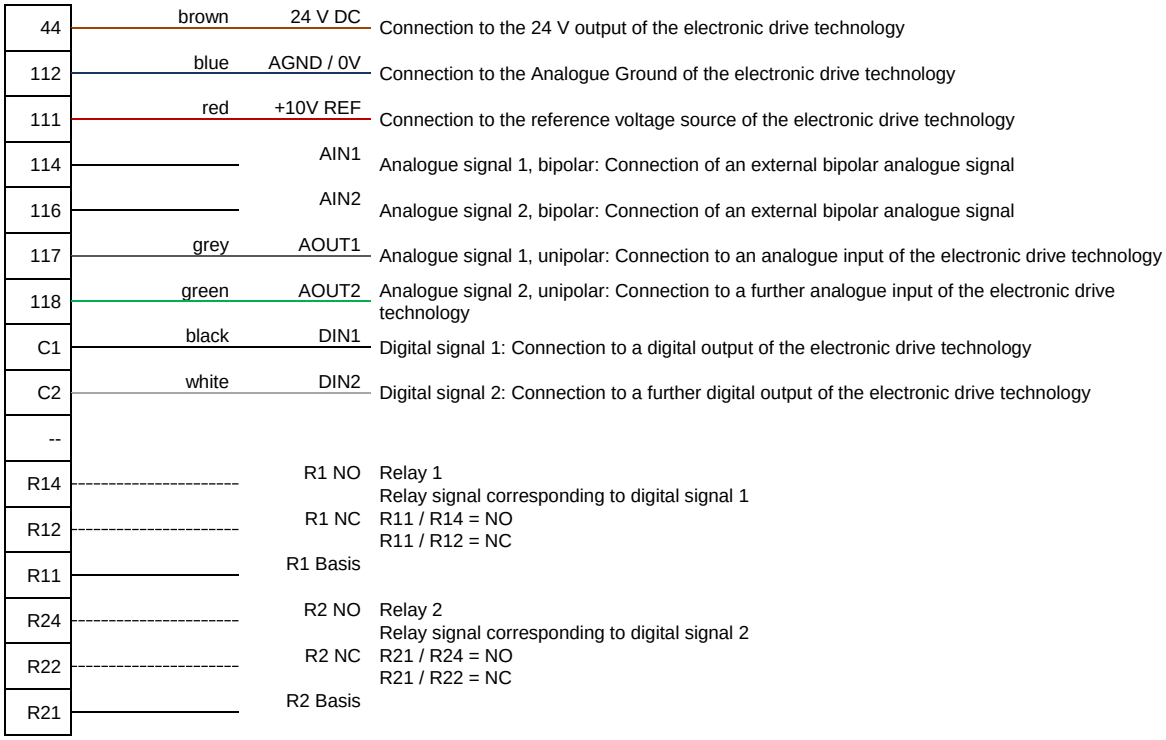
C2	DIN2	
C1	DIN1	
118	AOUT2	Analogue
117	AOUT1	
116	AIN2	
114	AIN1	
111	10V REF	
112	AGND / 0V	
44	24V	

Meaning, Functions		Description / Technical data		
Terminal			Parameter	
No.	Designation	Meaning	No.	Function of factory setting
Control voltage		For the supply of the module with a 24 V control voltage		
		24 V DC ± 25 % 20 mA		
44	24V	voltage (input)	-	-
112	AGND / 0V	Reference potential GND	-	-
Analogue inputs		Connection for bipolar analogue signals (input) for conversion into unipolar analogue signals.		
		Resolution 10Bit V= -10 …10 V Ri= 2 MΩ	*+ 10 V Reference voltage:* 5 mA from device (frequency inverter)	
111	10V REF	+ 10 V Reference voltage	The conversion of the analogue signals is inverted.	
112	AGND / 0V	Analogue reference potential GND		
114	AIN1	Analogue input 1		
116	AIN2	Analogue input 2		
Analogue outputs		Analogue signal connection (output)		
		Resolution 10Bit Accuracy 0.25 V, V= 0 …10 V I= ≤ 10 mA (load capacity) Pulsed signal (8 kHz)		
117	AOUT1	Analogue output 1	Assignment of the functions of the analogue input signals is carried out via parameter P400[...] of the frequency inverter.	
118	AOUT2	Analogue output 2		
Digital inputs		Relay input for connection of a digital output signal from the electronic drive technology.		
		Low: 0 - 2.4 V (2.3 kΩ ± 10 %) High: 18 - 30 V (2.3 kΩ ± 10 %)	Response time: ≤ 20 ms (response time “high”) ≤ 10 ms (response time “low”) Rated current at 23 °C: app. 10 mA at rated voltage: 24 V DC	
C1	DIN1	Digital input 1	Assignment of the functions of the digital output signals is made via parameter P434[...] of the frequency inverter.	
C2	DIN2	Digital input 2		
112	AGND/0V	Reference potential GND		
Relay outputs		Relay output designed as converter, control via the signals which are applied to the digital input.		
		Load: maximum 8 A, 30 V DC / 250 V AC Response time: ≤ 20 ms (response time “high”) ≤ 10 ms (response time “low”)	Service life Mechanical: 10^7 cycles Electrical: 10^5 cycles	
R14	R1 NO	Relay 1.1 – Closer (NO)	Signal source: **DIN1** Relay connection for function as	
R12	R1 NC	Relay 1.2 – Opener (NC)		
R11	R1 Basis	Relay 1.3 – Basis	*Normally open: R11 / R14*	*Opener: R11 / R12*
R24	R2 NO	Relay 2.1 – Closer (NO)	Signal source: **DIN2** Relay connection for function as	
R22	R2 NC	Relay 2.2 – Opener (NC)		
R21	R2 Basis	Relay 2.3 – Basis	*Closer (NO): R21 / R24*	*Opener (NC) R21 / R22*

Signal IN		**Signal OUT**	
Terminal	Value	Terminal	Value
114	-10 V	117	+10 V
114	+10 V	117	0 V
116	-10 V	118	+10 V
116	+10 V	118	0 V

Connection example



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