## **GETRIEBEBAU NORD**

Member of the NORD DRIVESYSTEMS Group



## SK TIE4-M12-SYSS

System bus input connection extension M12 BUS system connector

# CANOPER

Part number: 275 274 506

## Scope of delivery

1 x	M12 Plug connector	SK TIE4-M12-SYSS
1 x	Cover cap	blue

As-delivered status with screwed-on connector cover



#### Field of use

The M12 Plug connector has open cable ends and wire end sleeves. It is used to make a pluggable connection using normal commercial M12 round plug connectors. It connects the system bus technology option to the incoming field bus cable at the input side.

#### **Technical data**

Version								
Temperature range	-30 +90 °C							
Contact insert	Blue / RAL 5012							
Colour / Material	plastic							
Round plug connector	Metal, CuZn,							
Material	nickel plated							
Connection / Type	M12x1, adjustable Plug							
Round plug connector	connector with flexible strand							
	M16x1.5, metric screw thread							
Contact set	5 pin, A - coded							
Contacts / Coding	• •							

Weight	23 g
Connector cover Colour / Material	Blue / RAL 5012 plastic
Protection class (screwed)	IP67
Fastening	Hexagonal nut M16x1.5 *
Tightening torques * M12x1 Plug connector M16x1.5 Screw thread	0.6 Nm 1.5 Nm

<sup>\*</sup> Suitable assembly spanner commercially available (see Installation)

C	able
Number of conductors /	4 x 0.34 mm <sup>2</sup>
Cross section	
Wire strands / colours	UL / (br, bl, bk, gr)
Length of wire strands	250 mm
Degree of fouling	3/2

Mech. Service life	min. 100 plugging cycles
Operating voltage	max. 60 V
Current rating	4 A
Insulation resistance	≥ 10 <sup>8</sup> Ω

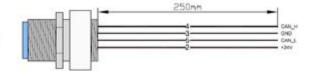
Technical Information / Datasheet	SK TIE4-M12-SYSS							
Connection extension	IT 275274506	1.3	0217	EN				



#### Circuit diagram









#### Installation / option locations

The M12 Receptacle connector are intended for direct installation in a free M16 hole / threaded opening of the device series (see below).

Device series	Recommended option location	Option locations						
SK 135E * SK 180E * SK 190E * Housing SK 1xxE xxx-xxx-x (-C))	4R / 4L (incoming) 5R / 5L (outgoing)							
SK 200E Frequency inverter connecting unit SK TI4-x-2xx-x (-C)	4R / 4L (incoming) 5R / 5L (outgoing) optional ** 6R / 6L, 7R / 7L, 8R / 8L	(A) (SA) (SA) (A) (A) (A) (A) (A) (A) (A) (A) (A) (						
BUS technology box BUS connection unit SK TI4-TU-BUS (-C)	1 / 2 / 3 / 4 optional *** 5R / 5L	(1 2 3 4) (st.) (sR.)						

<sup>\*</sup> The configuration capability of the respective Receptacle connector depends on its functionality with regard to the device series, e.g. the SK TIE-M12-SH Socket connector cannot be installed with the SK 1xxE housing.

The installation position and mounting location (coding pin or coding groove on contact carrier) of the Socket connector is freely positionable and should be aligned (see installation step 6) such that angled M12 round connectors can also be connected in a way that avoids collisions.

The installation steps described in the following apply to the installation of the M12 Receptable connectors in the housing and in the frequency inverter connecting unit or the BUS connecting unit of an external technology box.

Installation steps for installation of the M12 Receptable connector

1		Remove M16 blind plug at the provided option location side (right / left) of the starter or frequency inverter housing or the connection unit.
		Remove M16 blind plug from the provided option location hole (bottom) of the BUS connection unit.
2	)	Screw the middle hexagonal nut towards the front using a size 17 open-ended spanner.

2 / 5

<sup>\*\*</sup> Size 1 – 3 with optional SK TIE4-M12-M16 connection extension, size 4 direct installation

<sup>\*\*\*</sup> With optional SK TIE4-M20-M16 connection reduction



3.	EMC Twist associated wire pairs together (e.g. bus system, power supply, etc.).	ected M12 er frequency evant M16  Elled with an or into the opening in cessories  Elled with an or into the 2 threaded er Optional  Elby rotating Socket connector Plug connector	>
4.	Screw M12 flanges component directly into the affected M12 threaded opening of the housing or connecting unit of the frequency inverter. Screw M12 Receptable connector into the relevant M16 threaded opening of the BUS connecting unit.	93.000	(I)
	Alternative option locations		
	Connection extension SK TIE4-M12-M16	100	0.00
	The M12 Receptable connector can alternatively be installed with an <b>optional</b> M12-M16 connection extension.		0
	First screw the M12 Receptable connector directly into the connection extension and then fit into the M12 threaded opening in the connection unit. For more information see Optional accessories	oa	
	Connection reduction <b>SK TIE4-M20-M16</b> The M12 Receptable connector can alternatively be installed with an <b>optional</b> M20-M16 connection reduction. First screw the M12 Receptable connector directly into the	D.	5000
	connection reduction and then fit into one of the side M12 threaded openings in the connection unit. For more information see Optional accessories		0
5.	Align coding pin / coding groove vertically to 12 o'clock by rotating the front hexagonal nut.	Socket connector	Plug connector
		(G) (G)	
6.	Secure the front hexagonal nut with a 17 mm open-ended spanner.  Screw the rear hexagonal nut to the connection unit or the starter or frequency inverter housing using a size 17 open-ended spanner or a special torque / installation wrench.  Take the specified <b>tightening torques</b> into consideration, see		
	technical data.		
7.	Ensure that the M12 round plug connector or the cover cap is properly screwed onto the M12 Receptable connector and tightened.	Mo o	GO O

## NOTICE Corrosion

Pay attention to leaktightness during the installation of all components (assembly, connection extension etc.). It must be ensured that all components are correctly seated and the tightening torques are adhered to when doing this.

In order to ensure that protection class **IP66** is complied with (concerns all devices with type key SK ...-C), another **pressure - leaktightness test** must be performed when the assembly work has been completed.

Failure to do this will allow moisture to penetrate the device, which will result in the risk of corrosion and short circuiting.

IT 275274506 - 0217 3 / 5



## **1** Information

## Torque / assembly wrench



In order to provide a secure, sealed and vibration-proof connection, the M12 connection extensions, which are equipped with a hexagonal threaded ring (size 17), should be tightened with special torque / assembly wrenches. For professional installation NORD recommends the use of commercially available assembly tools (M12, size 17) with an adjustable, defined tightening torque (e.g. from Murrelektronik).

#### Connections

The open cable ends of the connection extension / M12 Plug connector are connected to the terminal strip of the BUS connection unit (technology box), the BUS customer interface or the control terminal strip in the frequency inverter or motor starter (see below).









	q						

Pin \*

3

BUS connection unit (SK TI4-TU-BUS (-C))

Contact

43/44 \*\*

40

**BUS** technology box

(SK TU4-... (-M12) / (-C))

### **Electrical connections**



Connection extension M12 Plug connector SK TIE4-M12-SYSS

Colour \*

brown

blue

Connection terminals SK 180E ... 190E, SK 2xxE

Designation

+24 V

0 V GND

BUS technology box SK TU4-... (-M12) / (-C) BUS connection unit SK TI4-TU-BUS (-C)

Designation

24 V

0 V GND

SYS+

SYS -

Contact assignments 4-pole Plug connector

_		
Λ	000	امط

 4
 black
 CAN\_H
 77
 SYS H

 5
 grey
 CAN\_L
 78
 SYS L

 \*\* 43: 24 V internal, SK 180E...SK 190E, SK 2x0E; 44: 24 V external, SK 2x5E

Signal

+24 V

GND





CANoper				Systembusebene und Digitalungange										Digitalaunginge			
9	20		32	-		F-	100	940	200	. 415	4	343	H	1	1	367	13
п				EX.	100	13	13	17	19	21	23	20	- 207	29	24	B	33
					12	14	14	19	20	-52	24	26	20	30	12	24	ж
	200	20	100		All I	Re-	500	86	501	-	Jan.	200	**	100	100	-	

Contact

11

15

14

16

\* the colour assignments and the colour-pin assignments were different in the pilot series

Pin	Colour	Signal	Contact	Designation	Contact	Designation
2	white	+24 V	43/44 **	+24 V	11	24 V
3	blue	GND	40	0 V GND	15	0 V GND
4	black	CAN_H	77	SYS H	14	SYS+
5	grey	CAN_L	78	SYS L	16	SYS -

4 / 5



#### **Optional accessories**

## **1** Information

## M12 / M20 screw openings





Conductive connection extensions made from brass SK TIE4-M12-M16 from M12 to M16 or connection reductions SK TIE4-M20-M16 from M20 to M16 are optionally available for installing the M12 connection extensions in an M12 or M20 screw opening. For more information, see further documentation.

## Further documentation (www.nord.com)

Document	Designation	
<u>BU 0180</u>	Frequency inverter manual SK 180E, SK 190E	
BU 0200	Frequency inverter manual SK 2xxE	
TI 275280000	Bus connection unit SK TI4-TU-BUS	
TI 275280500	Bus connection unit SK TI4-TU-BUS-C	
TI 275274510	Connection extension SK TIE4-M12-M16	
TI 275274511	Connection reduction SK TIE4-M20-M16	
TI 275271001	CANopen bus interface SK CU4-CAO	
TI 275281101	CANopen bus interface SK TU4-CAO	
TI 275281151	CANopen bus interface SK TU4-CAO-C	
TI 275281201	CANopen bus interface SK TU4-CAO-M12	
TI 275281251	CANopen bus interface SK TU4-CAO-M12-C	
TI 275271002	DeviceNet bus interface SK CU4-DEV	
TI 275281102	DeviceNet bus interface SK TU4-DEV	
TI 275281152	DeviceNet bus interface SK TU4-DEV-C	
TI 275281202	DeviceNet bus interface SK TU4-DEV-M12	
TI 275281252	DeviceNet bus interface SK TU4-DEV-M12-C	
TI 275271000	PROFIBUS DP bus interface SK CU4-PBR	
TI 275281000	PROFIBUS DP bus interface SK TU4-PBR	
TI 275281150	PROFIBUS DP bus interface SK TU4-PBR-C	

Document	Designation
TI 275281200	PROFIBUS DP bus interface SK TU4-PBR-M12
TI 275281250	PROFIBUS DP bus interface SK TU4-PBR-M12-C
TI 275271015	PROFINET IO bus interface SK CU4-PNT
TI 275281115	PROFINET IO bus interface SK TU4-PNT
TI 275281165	PROFINET IO bus interface SK TU4-PNT-C
TI 275281122	PROFINET IO bus interface SK TU4-PNT-M12
TI 275281172	PROFINET IO bus interface SK TU4-PNT-M12-C
TI 275271018	POWERLINK bus interface SK CU4-POL
TI 275281118	POWERLINK bus interface SK TU4-POL
TI 275281168	POWERLINK bus interface SK TU4-POL-C
TI 275271019	Ethernet/IP bus interface SK CU4-EIP
TI 275281119	Ethernet/IP bus interface SK TU4-EIP
TI 275281169	Ethernet/IP bus interface SK TU4-EIP-C
TI 275271017	EtherCAT bus interface SK CU4-ECT
TI 275281117	EtherCAT bus interface SK TU4-ECT
TI 275281167	EtherCAT bus interface SK TU4-ECT-C
TI 275274505	Connection extension SK TIE4-M12-SYSM

IT 275274506 - 0217 5 / 5