GETRIEBEBAU NORD
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SK TIE4-M12-INP

Part number: 275 274 516

Connection extension for initiators and 24 V

M12 control system connector

Scope of delivery

1 x	M12 plug connector	SK TIE4-M12-INP
1 x	Cover cap	black

As-delivered status with screwed-on connector cover

Usage area

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 technology option and the control terminal strip with the outgoing control signal cable at the input side.

Information

Connecting variants

The three "variably" used connecting cables (IN 1, IN 2 und IN 3) can be used differently depending on the application (e.g. 24 V feeds, digital inputs etc.). More information can be found in the associated customer specification.

Technical data

Version	
Temperature range	-30 … +90 °C
Contact insert Colour / Material	Black / RAL 9005 Plastic
Round plug connector Material	Metal, CuZn, nickel plated
Connection / Type Round plug connector	M12x1, adjustable plug connector with flexible strand M16x1.5, metric screw thread
Contact set Contacts / Coding	5 pin, A - coded

Weight	23 g
Connector cover Colour / Material	Black / RAL 9005 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

* Suitable assembly spanner commercially available (see Installation)

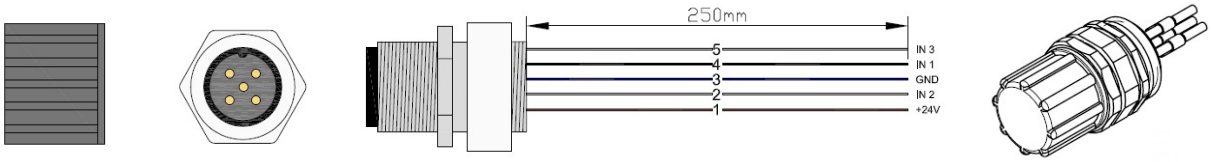
Cable	
Number of conductors /	5 x 0.34 mm^2

Mech. Service life	min. 100 plugging cycles

Cross section	
Wire strands / colours	UL / (br, wt, bl, bk, rd)
Length of wire strands	250 mm
Degree of fouling	3 / 2

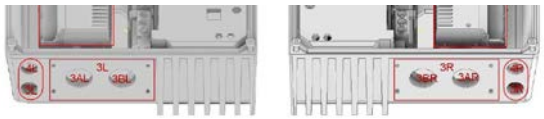
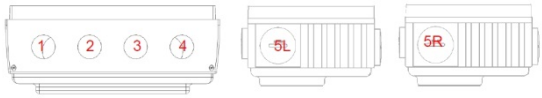
Operating voltage	max. 250 V
Current rating	4 A
Insulation resistance	≥ 10^8 Ω

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	
BUS technology box BUS connection unit SK TI4-TU-BUS (-C)	1 / 2 / 3 / 4 optional *** 5R / 5L	

* 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 Plug connector cannot be installed with the SK 1xxE housing.

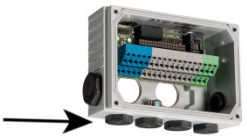
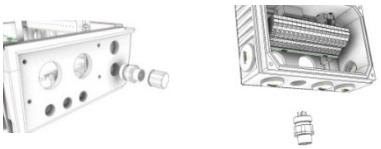
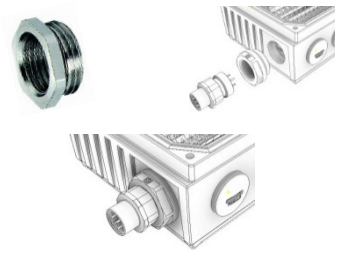
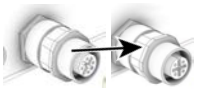
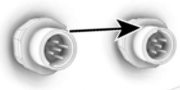
** Size 1 – 3 with optional SK TIE4-M12-M16 connection extension, size 4 direct installation

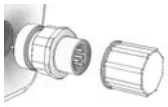
*** With optional SK TIE4-M20-M16 connection reduction

The installation position and mounting location (coding pin or coding groove on contact carrier) of the Plug 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. 	
3.	**EMC** Twist associated wire pairs together (e. g. bus system, power supply, etc.).	
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.	
	Alternative option locations Connection extension **SK TIE4-M12-M16** The M12 Receptable connector can alternatively be installed with an **optional** M12-M16 connection extension. 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	
	Connection reduction **SK TIE4-M20-M16** The M12 Receptable connector can alternatively be installed with an **optional** M20-M16 connection reduction. First screw the M12 Receptable connector directly into the connection reduction and then fit into one of the side M12 threaded openings in the connection unit. For more information see Optional accessories	
5.	Align coding pin / coding groove vertically to 12 o'clock by rotating the front hexagonal nut.	Socket connector  Plug connector 

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 **tightening torques** 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.	 

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.

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 panel 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).




Frequency inverter and motor starter	BUS connection unit	Technology box	BUS customer interface
	SK TI4-TU-BUS (-C)	SK TU4-… (-M12) / (-C)	SK CU4-...

Electrical connections

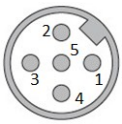
Connection extension M12 panel connector SK TIE4-M12-INP	*Connection terminals* SK 1x5E, SK 180E…SK 190E, SK 2xxE*	*Technology box SK TU4-… (-M12) / (-C) Connection unit SK TI4-TU-BUS (-C)*	*Customer interface SK CU4-…*

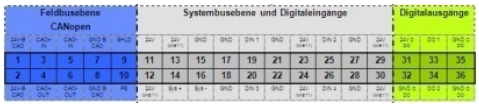
	Pin	Colour		Signal	Contact	Designation	Contact	Designation	Contact	Designation
Initiators	1	brown		+24 V	43/44 **	24 V	11/12	24 V	44	+24 V
	2	white		IN 2	as required		as required		as required	
	3	blue		GND	40	GND	15/17	GND	40	GND Bus
	4	black		IN 1	as required		as required		as required	
	5	gr		IN 3	as required		as required		as required	

* For series SK1xxE devices: Replace existing pin fork terminal with 8mm wire end sleeves, otherwise a secure contact cannot be guaranteed over the long term.

** 43: 24 V internal, SK 2x0E; 44: 24 V external, SK 2x5E

Contact assignments 5-pole **Panel connector** A - coded





Optional accessories

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	Name
BU 0135	Motor starter manual SK 105E … SK 175E
BU 0180	Frequency inverter manual SK 180E, SK 190E
BU 0200	SK 2xxE frequency inverter manual
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 275271010	Electronic brake rectifier, SK CU4-MBR
TI 275271011	Setpoint converter, SK CU4-REL
TI 275271006	IO extension SK CU4-IOE
TI 275281106	IO extension SK TU4-IOE
TI 275281156	IO extension SK TU4-IOE-C
TI 275281206	IO extension SK TU4-IOE-M12
TI 275281256	IO extension SK TU4-IOE-M12-C
TI 275271108	24 V power supply SK CU4-24V-123
TI 275271109	24 V power supply SK CU4-24V-140
TI 275281108	24 V power supply SK TU4-24V-123
TI 275281109	24 V power supply SK TU4-24V-140
TI 275281158	24 V power supply SK TU4-24V-123-C
TI 275281159	24 V power supply SK TU4-24V-123-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
TI 275281200	PROFIBUS DP bus interface SK TU4-PBR-M12
TI 275281250	PROFIBUS DP bus interface SK TU4-PBR-M12-C

Document	Name
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 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 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 275271015	PROFINET bus interface SK CU4-PNT
TI 275281115	PROFINET bus interface SK TU4-PNT
TI 275281165	PROFINET bus interface SK TU4-PNT-C
TI 275281122	PROFINET bus interface SK TU4-PNT-M12
TI 275281172	PROFINET bus interface SK TU4-PNT-M12-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