MCD EPOS

Positioning Compact Drive

Documentation

Cable Starting Set

maxon document number: 787798 - 02

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3 Introduction

This documentation “Cable Starting Set” provides the wiring details from each MCD EPOS cable. It contains pictures, drawings, cable specification, pin assignment and detailed connector information.
The included “Cable selector” helps to choose the correct cable.

The latest edition of these “Cable Starting Set”, additional documentation and software for MCD EPOS positioning controller may also be found in the internet under www.maxonmotor.com category <Service & Downloads>.

4 How to use this guide

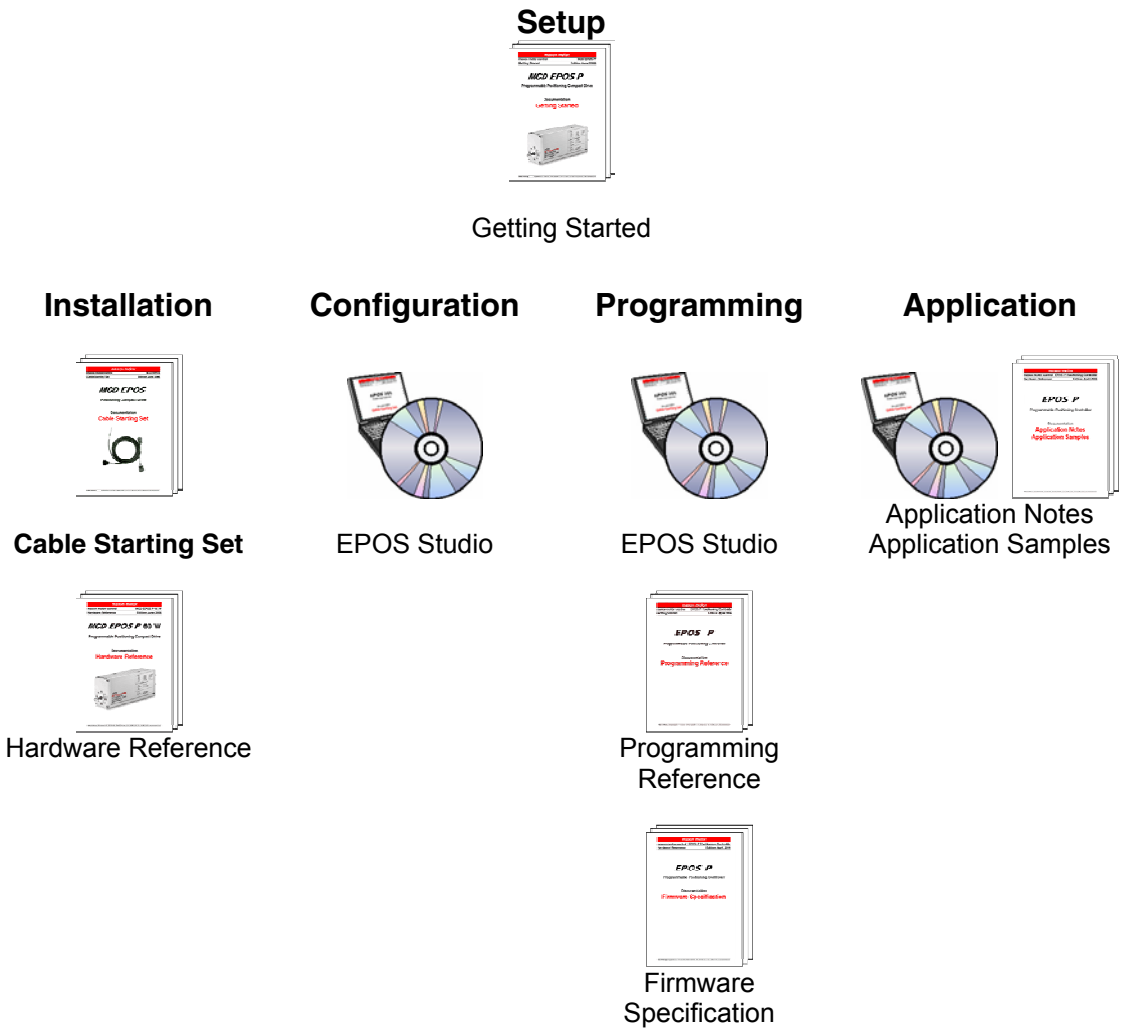

Figure 1: MCD EPOS documentation hierarchy

5 Cable Selector

5.1 Available cable

MCD EPOS Power / RS232-CAN Cable ..... order number **325939**
MCD EPOS Power / CAN-CAN Cable ..... order number **325235**
MCD EPOS Signal Cable ..... order number **326923**
MCD EPOS CAN Termination Plug ..... order number **326925**

5.2 Single axis wiring example

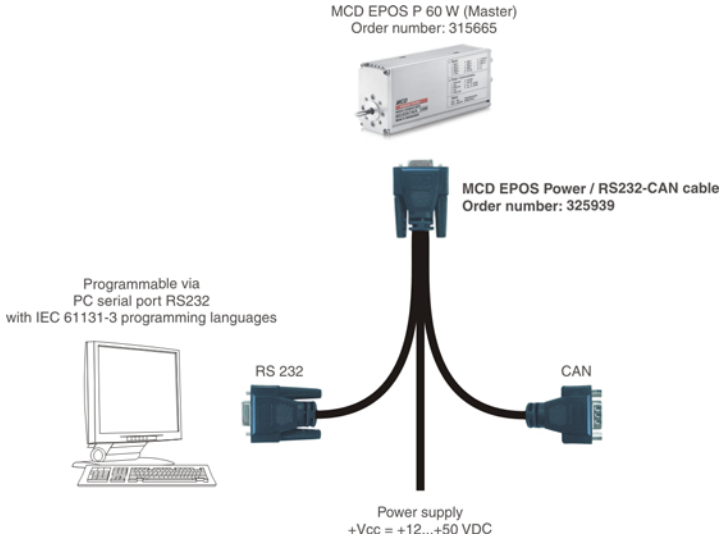

Figure 2: Wiring of MCD EPOS P 60W single axis application

Used cable:
1 x MCD EPOS Power / RS232-CAN Cable ..... order number **325939**

Optional:
MCD EPOS Signal Cable ..... order number **326923**

5.3 Multi axis wiring example

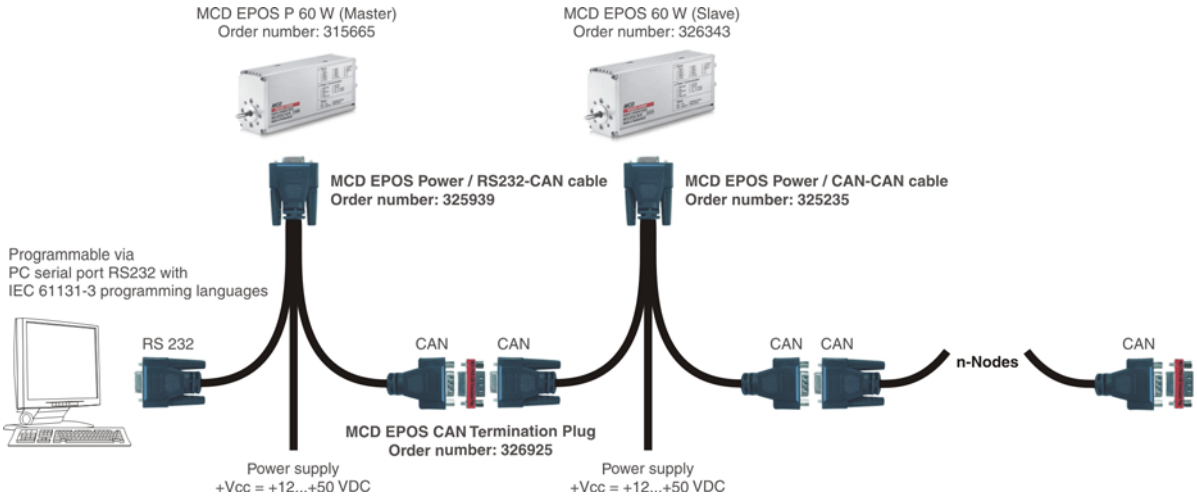

Figure 3: Wiring of MCD EPOS P 60W multi axis application

Used cable:
1 x MCD EPOS Power / RS232-CAN Cable ..... order number **325939**
n x MCD EPOS Power / CAN-CAN Cable ..... order number **325235**
2 x MCD EPOS CAN Termination Plug ..... order number **326925**

Optional:
MCD EPOS Signal Cable ..... order number **326923**

6 MCD EPOS Power / RS232-CAN Cable (Connector J2)

Order number: MCD EPOS Power / RS232-CAN Cable **325939**

Figure 4: MCD EPOS Power / RS232-CAN Cable 325939

The “MCD EPOS Power / RS232-CAN Cable” is a combination of 3 cables:

1. RS232 cable: 2 x 2 x AWG 28 (0.08 mm^2), twisted pair, shielded, 3 m length
2. Power cable: 3 x AWG 22 (0.34 mm^2), 3 m length
3. CAN cable: 2 x 2 x AWG 28 (0.08 mm^2), twisted pair, shielded, 1.5 m length

6.1 Power / Communication connector (Head A)

Figure 5: MCD EPOS Power / RS232-CAN Cable head A

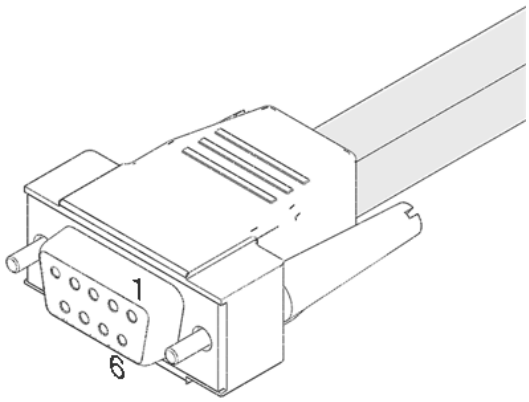

Figure 6: Pin assignment MCD EPOS Power / RS232-CAN Cable head A

Connect this cable end to MCD EPOS P connector J2 “Power / Communication connector “.

Pin No.	Cable	Twisted wire	Signal name	Description
1	RS232	twisted	EPOS RxD	EPOS RS232 receive
2	RS232		Gnd	Ground
3	RS232	twisted	EPOS TxD	EPOS RS232 transmit
4	RS232, CAN		Gnd	Ground
5	Power		Power_Gnd	Ground of supply voltage
6	RS232, CAN	twisted	CAN high	CAN high bus line
7	RS232, CAN		CAN low	CAN low bus line
8	Power		+V_C 12-50 VDC	Logic supply voltage (optional) +12…+50 VDC
9	Power		+V_{CC} 12-50 VDC	Power supply voltage +12…+50 VDC
x	RS232, CAN		Shield	Cable shield soldered on connector housing

Connector: Female D-Sub connector DIN 41652, 9 poles with mounting screws

6.2 RS-232 connector (Head B)

Figure 7: MCD EPOS Power / RS232-CAN Cable head B

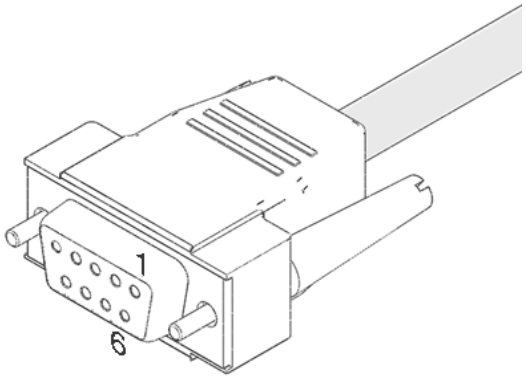

Figure 8: Pin assignment MCD EPOS Power / RS232-CAN Cable head B

Connect this cable end to your COM interface.

Pin No.	Cable	Twisted wire	Signal name	Description
1	not connected			
2	RS232	Pair 1	EPOS TxD	EPOS RS232 transmit
3	RS232	Pair 2	EPOS RxD	EPOS RS232 receive
4	not connected			
5	RS232 RS232	Pair 1 Pair 2	Gnd Gnd	Ground Ground
6	not connected			
7	not connected			
8	not connected			
9	not connected			
x	RS232		Shield	Cable shield soldered on connector housing

Pin assignment according to RS-232 standard.

Connector: Female D-Sub connector DIN 41652, 9 poles with mounting screws

6.3 Supply voltage (Head C)

Figure 9: MCD EPOS Power / RS232-CAN Cable head C

Connect this cable end to power supply (+12…+50 VDC).

Terminal	Cable	Colour	Signal name	Description
"-"	Power	black	Power_Gnd	Ground of supply voltage
"+"	Power	brown	+V_C 12-50 VDC	Logic supply voltage (optional) +12…+50 VDC
"++"	Power	red	+V_{CC} 12-50 VDC	Power supply voltage +12…+50 VDC

Cable end sleeve: 0.34 mm^2

6.4 CAN connector (Head D)

Figure 10: MCD EPOS Power / RS232-CAN Cable head D

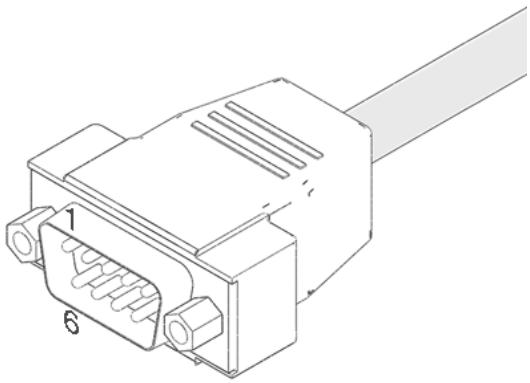

Figure 11: Pin assignment MCD EPOS Power / RS232-CAN Cable head D

Connect this cable end to the next CAN node or to a "MCD EPOS CAN Termination Plug" (326925).

Pin No.	Cable	Twisted wire	Signal name	Description
1	not connected			
2	CAN	Pair 1	CAN low	CAN low bus line
3	CAN		Gnd	Ground
4	not connected			
5	CAN		Shield	Pin 5 connected to cable shield soldered on connector housing
6	not connected			
7	CAN	Pair 1	CAN high	CAN high bus line
8	not connected			
9	not connected			
x	CAN		Shield	Cable shield soldered on connector housing

Pin assignment according to "CiA Draft Standard 102 Version 2.0".

Connector: Male D-Sub connector DIN 41652, 9 poles with mounting nut

7 MCD EPOS Power / CAN-CAN Cable (Connector J2)

Order number: MCD EPOS Power / CAN-CAN Cable **325235**

Figure 12: MCD EPOS Power / CAN-CAN Cable 325235

The “MCD EPOS Power / CAN-CAN Cable” is a combination of 3 cables:

1. CAN cable 1: 2 x 2 x AWG 28 (0.08 mm^2), twisted pair, shielded, 1.5 m length
2. Power cable: 3 x AWG 22 (0.34 mm^2), 3 m length
3. CAN cable 2: 2 x 2 x AWG 28 (0.08 mm^2), twisted pair, shielded, 1.5 m length

7.1 Power / Communication connector (Head A)

Figure 13: MCD EPOS Power / CAN-CAN Cable head A

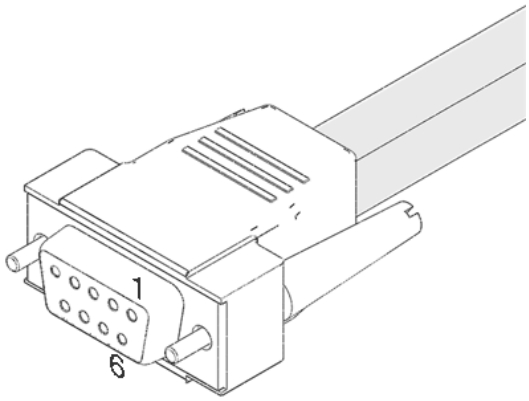

Figure 14: Pin assignment MCD EPOS Power / CAN-CAN Cable head A

Connect this cable end to MCD EPOS P connector J2 “Power / Communication connector “.

Pin No.	Cable	Twisted wire	Signal name	Description
1	not connected			
2	not connected			
3	not connected			
4	CAN 1, CAN 2		Gnd	Ground
5	Power		Power_Gnd	Ground of supply voltage
6	CAN 1, CAN 2	twisted	CAN high	CAN high bus line
7	CAN 1, CAN 2		CAN low	CAN low bus line
8	Power		+V_C 12-50 VDC	Logic supply voltage (optional) +12…+50 VDC
9	Power		+V_{CC} 12-50 VDC	Power supply voltage +12…+50 VDC
x	CAN 1, CAN 2		Shield	Cable shield soldered on connector housing

Connector: Female D-Sub connector DIN 41652, 9 poles with mounting screws

7.2 CAN connector (Head B)

Figure 15: MCD EPOS Power / CAN-CAN Cable head B

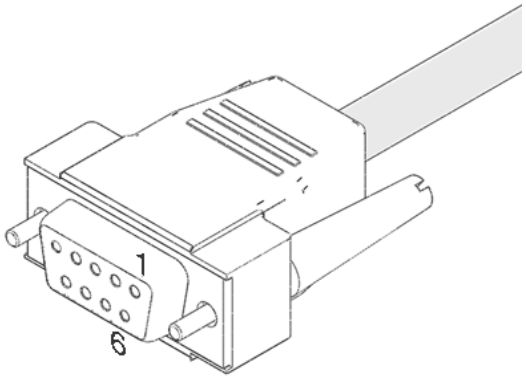

Figure 16: Pin assignment MCD EPOS Power / CAN-CAN Cable head B

Connect this cable end to the previous CAN node or to your CANopen COM interface.

Pin No.	Cable	Twisted wire	Signal name	Description
1	not connected			
2	CAN 1	Pair 1	CAN low	CAN low bus line
3	CAN 1		Gnd	Ground
4	not connected			
5	CAN 1		Shield	Pin 5 connected to cable shield soldered on connector housing
6	not connected			
7	CAN 1	Pair 1	CAN high	CAN high bus line
8	not connected			
9	not connected			
x	CAN 1		Shield	Cable shield soldered on connector housing

Pin assignment according to "CiA Draft Standard 102 Version 2.0".

Connector: Female D-Sub connector DIN 41652, 9 poles with mounting screws

7.3 Supply voltage (Head C)

Figure 17: MCD EPOS Power / CAN-CAN Cable head C

Connect this cable end to power supply (+12…+50 VDC).

Terminal	Cable	Colour	Signal name	Description
"-"	Power	black	Power_Gnd	Ground of supply voltage
"+"	Power	brown	$+V_C$ 12-50 VDC	Logic supply voltage (optional) +12…+50 VDC
"++"	Power	red	$+V_{CC}$ 12-50 VDC	Power supply voltage +12…+50 VDC

Cable end sleeve: 0.34 mm^2

7.4 CAN connector (Head D)

Figure 18: MCD EPOS Power / CAN-CAN Cable head D

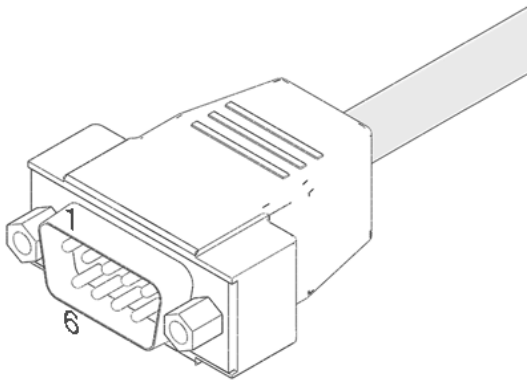

Figure 19: Pin assignment MCD EPOS Power / CAN-CAN Cable head D

Connect this cable end to the next CAN node or to a "MCD EPOS CAN Termination Plug" (326925).

Pin No.	Cable	Twisted wire	Signal name	Description
1	not connected			
2	CAN 2	Pair 1	CAN low	CAN low bus line
3	CAN 2		Gnd	Ground
4	not connected			
5	CAN 2		Shield	Pin 5 connected to cable shield soldered on connector housing
6	not connected			
7	CAN 2	Pair 1	CAN high	CAN high bus line
8	not connected			
9	not connected			
x	CAN 2		Shield	Cable shield soldered on connector housing

Pin assignment according to "CiA Draft Standard 102 Version 2.0".

Connector: Male D-Sub connector DIN 41652, 9 poles with mounting nut

8 MCD EPOS Signal Cable (Connector J1)

Order number: MCD EPOS Signal Cable **326923**

Figure 20: MCD EPOS Signal Cable 326923

The “MCD EPOS Signal Cable” is a 14 x AWG 26 (0.14 mm^2) 3 m length cable:

8.1 Signal connector (Head A)

Figure 21: MCD EPOS Signal Cable head A

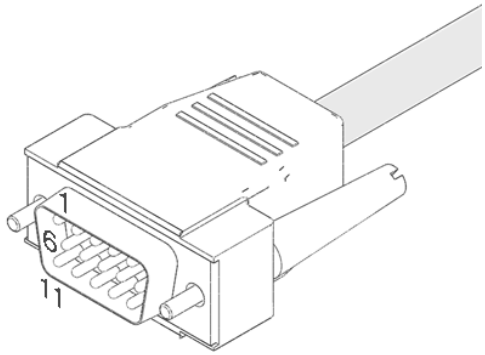

Figure 22: Pin assignment MCD EPOS Signal Cable head A

Connect this cable end to MCD EPOS P connector J2 “Power / Communication connector “.

Pin No.	Colour	Signal name	Description
1	white	DigIN 7	Digital input 7 “High Speed Command” signal
2	brown	DigIN 7/	Digital input 7 “High Speed Command” complement signal
3	green	DigIN 8	Digital input 8 “High Speed Command” signal
4	yellow	DigIN 8/	Digital input 8 “High Speed Command” complement signal
5	grey	D_Gnd	Digital signal ground
6	pink	DigIN 1	Digital input 1 “General Purpose”
7	blue	DigIN 2	Digital input 2 “Home Switch”
8	red	DigIN 3	Digital input 3 “Positive Limit Switch”
9	black	DigIN 4	Digital input 4 “Negative Limit Switch”
10	violet	IN_COM	Common signal for DigIN 1…4
11	grey-pink	+V Opto IN	External supply Input voltage for Digital Outputs (+12 … +24VDC)
12	red-blue	DigOUT 3	Digital output 3 “General Purpose”
13	white-green	DigOUT 4	Digital output 4 “General Purpose”
14	not connected		
15	not connected		

Connector: Male D-Sub connector high-density, 15 poles with mounting screws

8.2 Signal wires (Head B)

Figure 23: MCD EPOS Signal Cable head B

Connect this cable end to any used interface.

Pin No.	Colour	Signal name	Description
1	white	DigIN 7	Digital input 7 “High Speed Command” signal
2	brown	DigIN 7/	Digital input 7 “High Speed Command” complement signal
3	green	DigIN 8	Digital input 8 “High Speed Command” signal
4	yellow	DigIN 8/	Digital input 8 “High Speed Command” complement signal
5	grey	D_Gnd	Digital signal ground
6	pink	DigIN 1	Digital input 1 “General Purpose”
7	blue	DigIN 2	Digital input 2 “Home Switch”
8	red	DigIN 3	Digital input 3 “Positive Limit Switch”
9	black	DigIN 4	Digital input 4 “Negative Limit Switch”
10	violet	IN_COM	Common signal for DigIN 1…4
11	grey-pink	+V Opto IN	External supply Input voltage for Digital Outputs (+12 … +24VDC)
12	red-blue	DigOUT 3	Digital output 3 “General Purpose”
13	white-green	DigOUT 4	Digital output 4 “General Purpose”
14	not connected		
15	not connected		

Cable end sleeve: 0.14 mm^2

9 MCD EPOS CAN Termination Plug

Order number: MCD EPOS CAN Termination Plug **326925**

Figure 24: MCD EPOS CAN Termination Plug side A

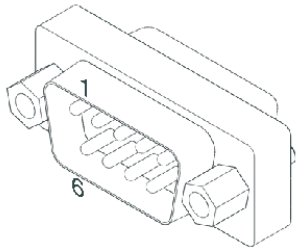

Figure 25: Pin assignment MCD EPOS CAN Termination Plug side A

Figure 26: MCD EPOS CAN Termination Plug side B

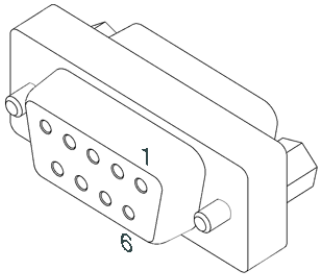

Figure 27: Pin assignment MCD EPOS CAN Termination Plug side B

The "MCD EPOS CAN Termination Plug" (326925) fits to all CAN cable (pin assignment according to "CiA Draft Standard 102 Version 2.0") with 9 pole D-Sub connector (according DIN 41652) for terminating your CAN network (terminating resistor = 120 Ω).

Side A (male) Pin No.	Signal name	Description	Side B (female) Pin No.
1			1
2	CAN_LOW	CAN low bus line	2
3			3
4			4
5			5
6			6
7	CAN_HIGH	CAN high bus line	7
8			8
9			9