Extension module

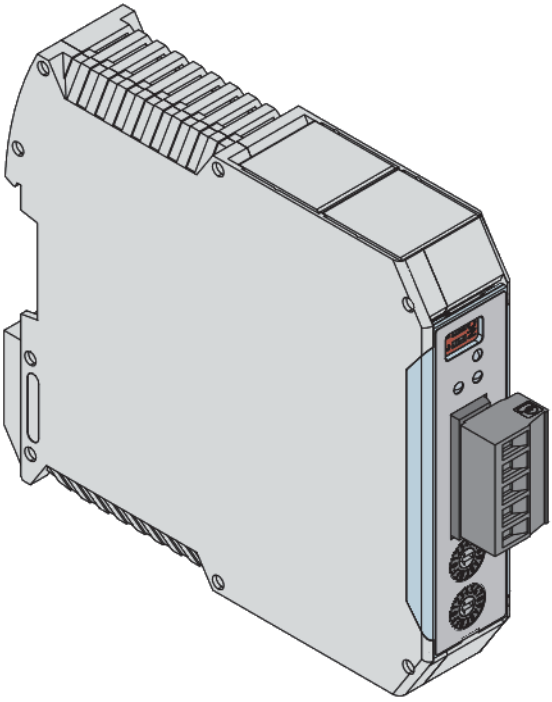
CMGA-E1-DN

FESTO

Description

Installation manual

Extension module
DeviceNet



761726
1201NH

Translation of the original instructions
GDCP-CMGA-E1-DN-EN

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Status: HB-37350-810-57-01E-DE

Identification marking of dangers and instructions on how to avoid them:

Warning
Dangers which can lead to death or serious injuries.

Caution
Dangers which can lead to light injuries or to serious material damage.

Other symbols:

Note
Material damage or loss of function.

Recommendation, tip, reference to other documentation

Necessary or useful accessories

Information on environmentally friendly use

Text designation:
- Activities which can be carried out in any sequence.
1. Activities which should be carried out in the specified sequence.
– General lists

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1 Important note

Definition of individual target groups
- Project engineers for safe drive systems: engineers and technicians
- Assembly, electrical installation, maintenance and replacement of devices: company electricians and service technicians
- Commissioning, operation and configuration: technicians and engineers

2 Safety regulations

2.1 Installation and commissioning

- Do not install or operate damaged products. Please report any damage immediately to the forwarding agent responsible.
- Installation work, commissioning and service work on the device may only be performed by qualified electrical personnel with relevant knowledge of the accident prevention regulations.
- The applicable regulations, and any other special safety regulations relevant to the particular application, must be strictly observed.

2.2 User instructions

- Only install the module and put it into operation if you are fully familiar with the applicable regulations on working safety and with the operating instructions of the CMGA-B1 basic modules.

2.3 Intended utilization

- The module may only be used as a “slave” module in a DeviceNet environment in accordance with the EN 50170 standard.
- CMGA-E1-DN is not permitted to be used for safety-related reactions.

2.4 Operation and service

- The module must always be de-energized before installation and removal, or before disconnecting signal lines or power supply cables.
- When installing or removing the module, appropriate measures must be taken to prevent electrostatic discharge to the externally arranged terminal and plug connections.

2.5 Scope of delivery

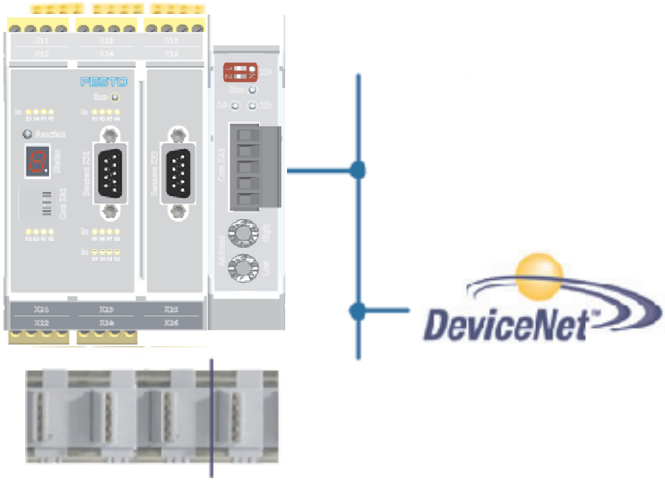
The scope of delivery includes:

– Extension module CMGA-E1-DN

The EDS file with CMGA icon and the installation handbooks can be found on the CD ROM GSPF-CMGA-BS... or under ➔ www.festo.com.

3 Description of function

The CMGA-E1-DN enables the user to transmit telegrams (diagnostic telegram such as CMGA-B1-M2-L2-A0) via DeviceNet. A maximum of 2 CAN telegrams can be forwarded.
The module should be parametrised as a DeviceNet participant (slave).
The DeviceNet baud rates of 125 kbps, 250 kbps and 500 kbps can be set via the front address switch.
The size of the output information is 16 byte.
The CMGA-E1-DN **must** must be connected with one or several basic modules (CMGA-B1-M...) via a plug-in connector on the back wall.
The DeviceNet plug connection must be made in accordance with the installation regulations of the ODVA.



CMGA-B1-M1-L1-A0 CMGA-E1-DN

Fig. 1 Example of a configuration of CMGA-B1-M2-L2-A0 with CMGA-E1-DN

4 Commissioning

4.1 Procedure

Commissioning must only be performed by qualified personnel! Strictly follow the safety regulations when commissioning!
The following example shows a commissioning with RSNetWorx.

4.2 Project engineering

First copy the supplied electronic data sheet file with icon into the corresponding Rockwell program directory.

4.2.1 Linking in the electronic data sheet file

Electronic data sheet files can be linked in, removed or assigned to icons in the menu Tools › Electronic Data Sheet Wizard.

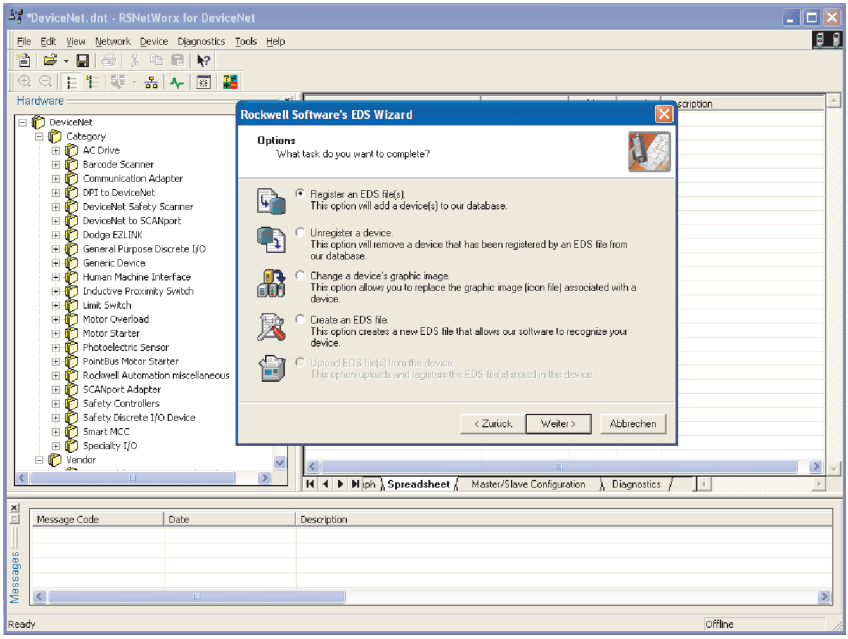


Fig. 2 Electronic Data Sheet Wizard

4.2.2 Linking into the network diagram

The device **“Anybus-IC DEV”** can be dragged into the diagram by “drag and drop” in the hardware menu under Vendor.

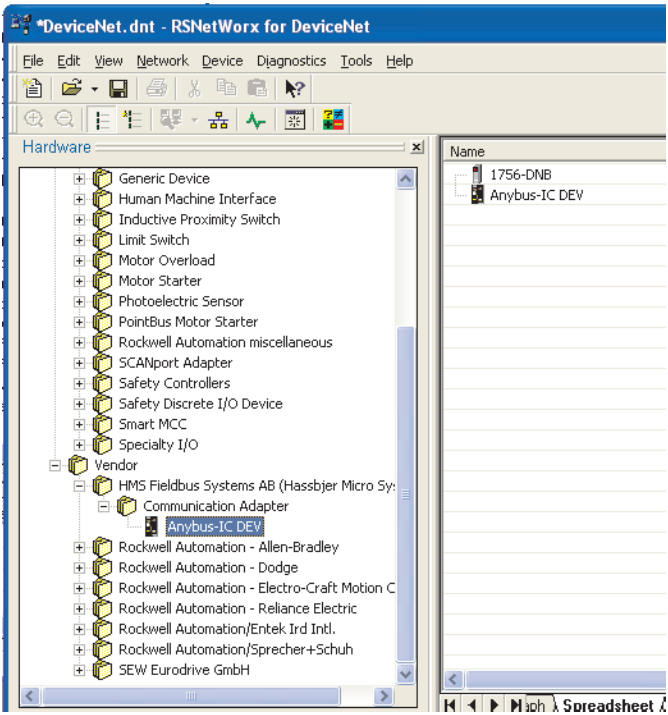


Fig. 3 Linking into the network diagram

4.2.3 Setting CMGA-E1-DN

By double clicking on **“Anybus-IC DEV”**, the following information can be displayed.
The only setting which must be made here is the issuing of the bus address (node).

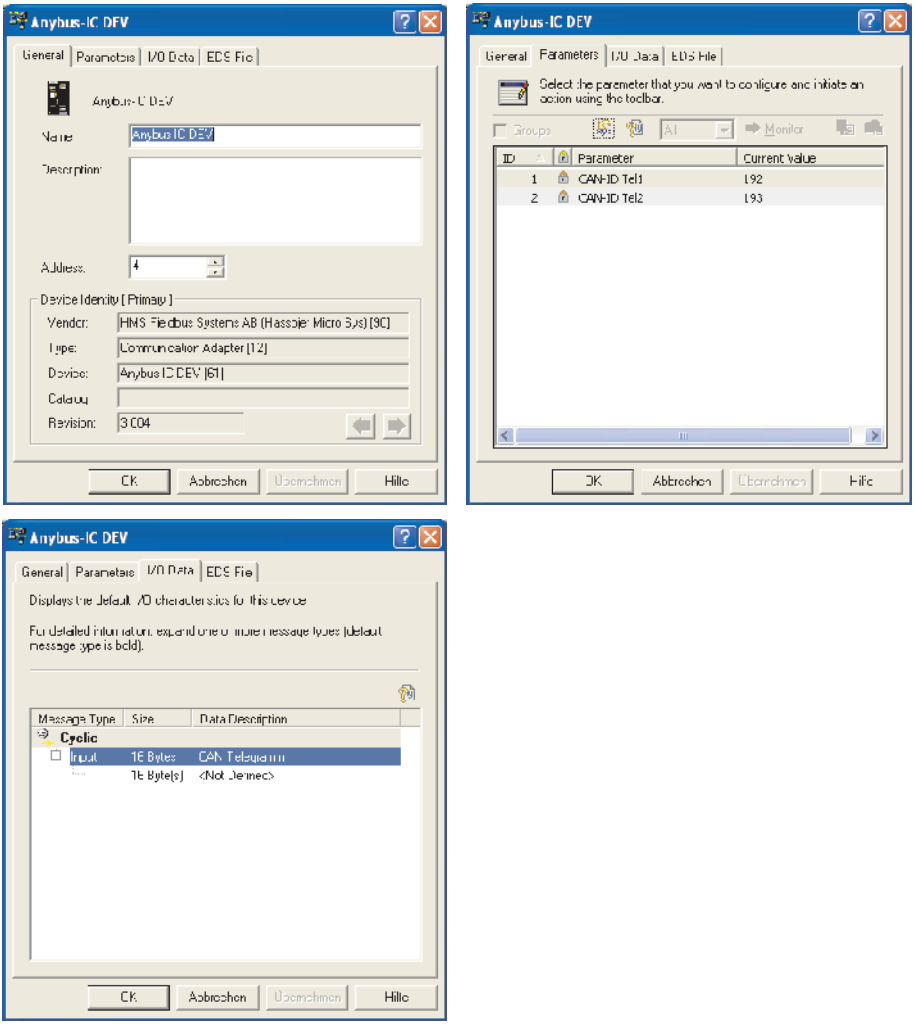


Fig. 4 Settings

4.2.4 Configuration of the DeviceNet scanner

The following settings must be made by selecting the scanner (here: 1756-DNB).
The I/O parameters must be selected in the Scanlist menu.

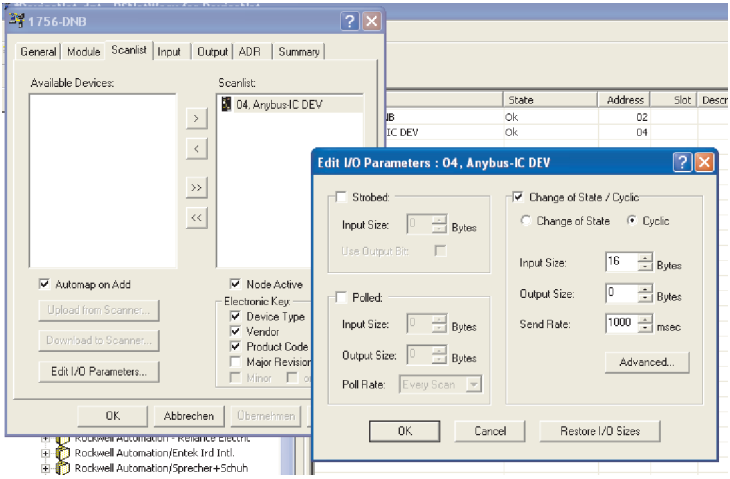


Fig. 5 Configuration of the DeviceNet scanner scanlist

In the Input menu the input information (16 byte cyclic) must be “mapped” in the address range of the scanner.

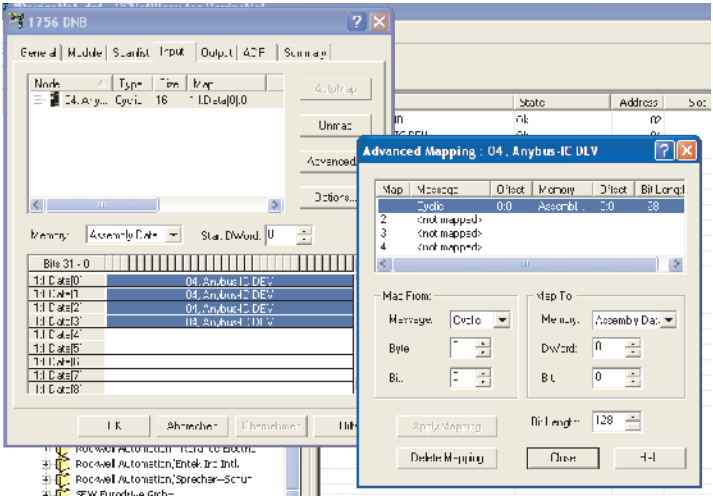


Fig. 6 Configuration of the DeviceNet scanner address range

When all settings have been made, the network diagram can be saved.

4.2.5 Linking into RSLogix 5000

In order to be able to validate the scanner data (1756-DNB), the scanner must be linked into the "I/O configuration".

By selecting the module the saved network diagram can be loaded in the "Module Properties" window in the RSNetWorx menu.

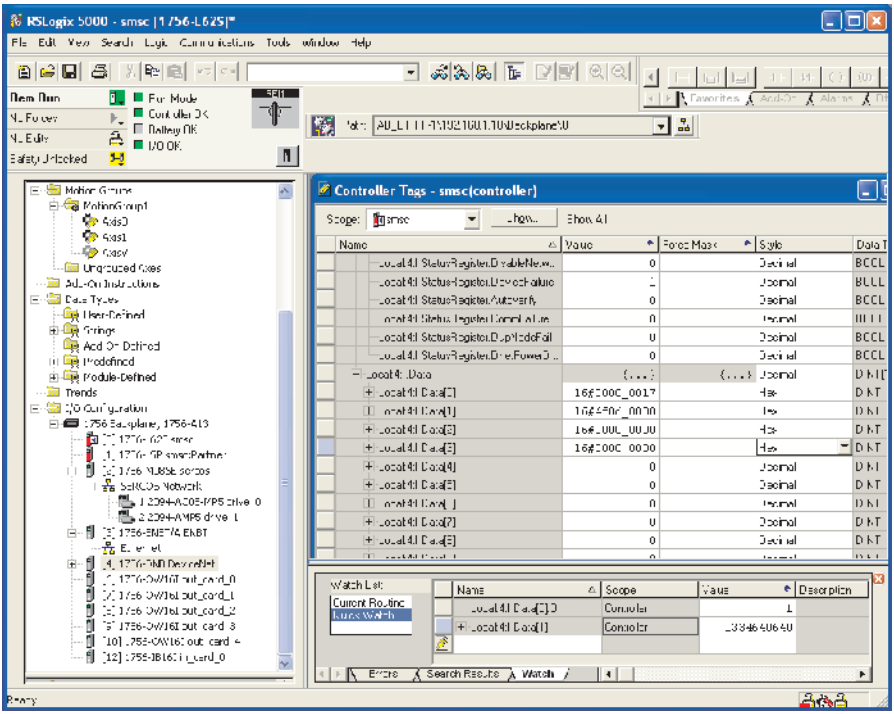


Fig. 7 Linking into RSLogix 5000

4.2.6 Validation of the CMGA-E1-DN data

One can enable the Controller Tags window in the Logic menu.

Before the data can be validated, the DeviceNet scanner must be set in the “RUN” mode. This is done by setting the bit “Local:4:O.CommandRegister.Run”.

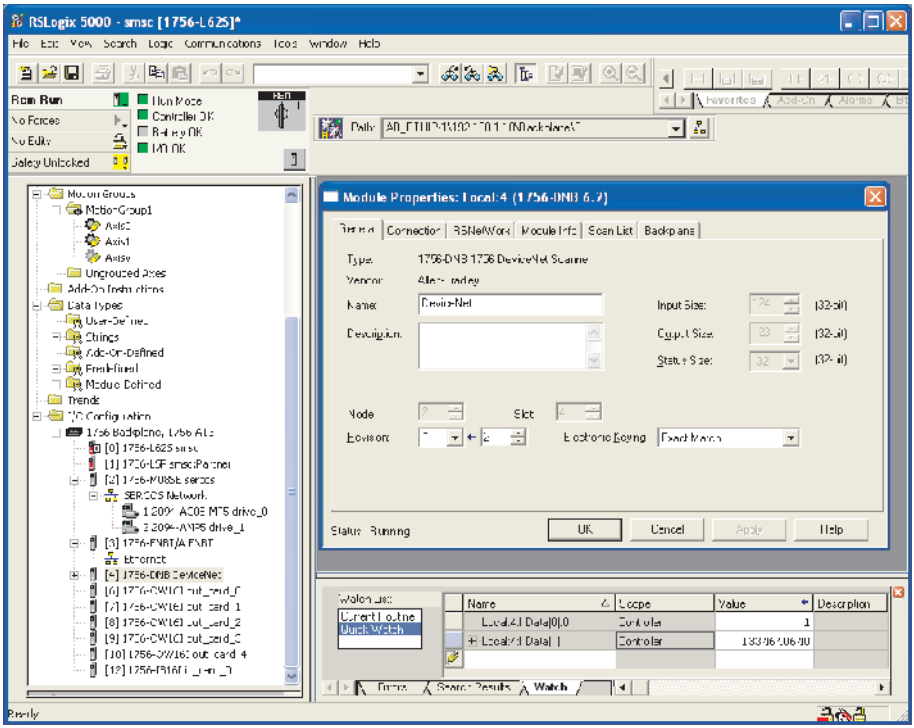


Fig. 8 Validation of the CMGA-E1-DN data

4.3 Device settings

The following can be set on the front of the module:

1 Coding switch for Bus termination
2 Diagnostics LEDs
3 Fieldbus plug connector
4 DeviceNet address switch

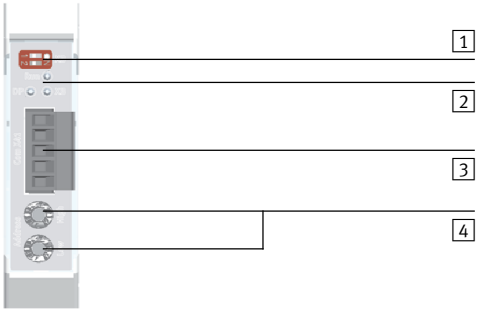


Fig. 9 Front of CMGA-E1-DN

4.3.1 Address switch

With these switches one can set the bus address (up to max. 63) and the DeviceNet baud rate.
The entry is made in **hexadecimal**.

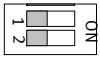
Address HIGH				Address LOW				Baud rate	Node ID
B7	B6	B5	B4	B3	B2	B1	B0		
–	–	0	0	0	0	0	0	–	0
–	–	0	0	0	0	0	1	–	1
–	–	0	0	0	0	1	0	–	2
–	–	0	0	0	0	1	1	–	3
–	–	...	...	...	...	...	...	–	...
–	–	1	1	1	1	0	1	–	61
–	–	1	1	1	1	1	0	–	62
–	–	1	1	1	1	1	1	–	63
0	0	–	–	–	–	–	–	125 kbps	–
0	1	–	–	–	–	–	–	250 kbps	–
1	0	–	–	–	–	–	–	500 kbps	–
1	1	–	–	–	–	–	–	Auto baud	Not supported

Tab. 1 DeviceNet address and baud rate

e.g. baud rate 125 kbps:
– e.g. baud rate address: 5: ADDR HIGH = “0”
ADDR LOW = “5”
– e.g. baud rate address: 46: ADDR HIGH = “2”
ADDR LOW = “E”
e.g. baud rate 250 kbps:
– e.g. baud rate address: 5: ADDR HIGH = “4”
ADDR LOW = “5”
– e.g. baud rate address: 46: ADDR HIGH = “6”
ADDR LOW = “E”

4.3.2 Coding switch

Terminating resistor for CANbus connection:

Coding switch		Description
	switch 1	120 Ohm terminating resistor on back wall of CAN
	switch 2	120 Ohm terminating resistor on 2nd CAN interface via SUB-D socket

Tab. 2 Coding switch terminating resistor

Note:
- If DeviceNet is being used, both switches are to be set to **“OFF”**.

4.4 Diagnostics

LED	Colour	Mode	Description
RUN	Green	“flashing”	Module OK
DP	Green	“permanent”	DeviceNet connection active
	Green	“flashing”	Bus in IDLE mode
	Red	“flashing”???	Fault in the device (contact manufacturer)
	Red	“flashing”	Time out connection 24V bus supply voltage is missing Faulty setting of bus address or baud rate
	Red/green	“alternating”	In self test mode
XB	Green	“permanent”	Processing OK
	Green	“flickering”	Missing CAN telegram
	Green	“flashing”	AutoBaud processing
	Red	“permanent”	Fault in the device (contact manufacturer)
	Red	“flashing”	Resettable error message
	Red	“alternating”	In self test mode

Tab. 3 LED display

4.5 Configuration of the user data

Configuration of the internal data frame, see installation handbook for GDSP-CMGA-E1-G2 CAN messages.

Byte															
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Data telegram CAN ID2								Data telegram CAN ID1							

Tab. 4 User data

4.6 Modification / handling changes to the device

Repair
Repair work on the device can only be performed in the factory.

Warranty
The warranty is invalidated if the module is opened without permission.

5 Maintenance

5.1 Replacement of a module

Note

- No plug-in connection of the CMGA module must under any circumstances be disconnected or reconnected if it is live. There is a danger of sensor damage, particularly with connected position or speed sensors.

The following must be observed when replacing a module:

1. Remove the power supply
2. Remove DeviceNet connecting cable
3. Take the module from the top-hat rail and pack it in accordance with EMC regulations.
4. Attach the new module on the top-hat rail.
5. Set the DeviceNet address (see address of the previously installed module)
6. Plug in the DeviceNet connecting cable
7. Activate the power supply via the bus connector on the back wall

6 Technical data

6.1 Environmental conditions

Module CMGA-...	
Protection class	IP 20
Ambient temperature	0 °C ... 50 °C
Service life	90000 hours at 50 °C ambient

Tab. 5 Technical data of the environmental conditions

6.2 Characteristic data

Module CMGA-E1-DN	
System running time	20 ms
Number of CAN objects	2
Size of CAN telegrams	8 bytes
CAN ID telegram 1	192
CAN ID telegram 2	193

Tab. 6 Technical data of characteristic data

7 Pin allocation

DeviceNet allocation: 5 pin R5.08 plug

	Pin	**Allocation**
	1	V-
	2	CAN_L
	3	SHIELD
	4	CAN_H
	5	V+

Tab. 7 Pin allocation

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