How to change from CAN@net II to CAN@net NT 100
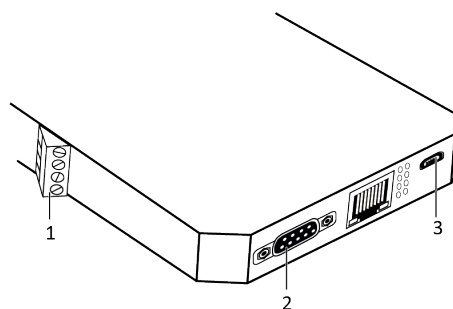
1 Connectors and Technical Data

	CAN@net II	CAN@net NT 100
Power supply	9 V DC to 32 V DC	9 V DC to 36 V DC
Dimensions	114.5 x 99 x 22.5 mm	114.5 x 99 x 22.5 mm
CAN connector	D-Sub 9	D-Sub 9
Power connector	Terminal adapter	Terminal adapter
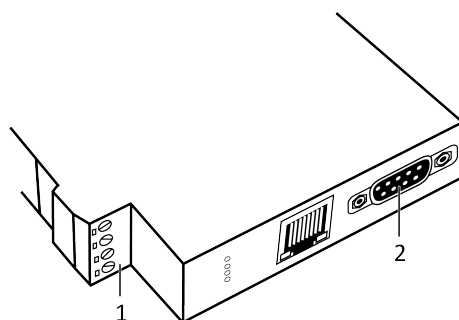
CAN@net II   **CAN@net NT 100**
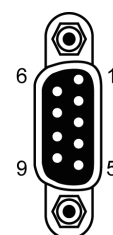

1	Power connector
2	CAN connector
3	USB mini connector for configuration

The pin allocation of the CAN connector and of the power connector of CAN@net II and CAN@net NT are the same.

Pin Allocation CAN Connector

Pin no.	Signal
1	—
2	CAN low
3	CAN GND
4	—
5	Shield
6	—
7	CAN high
8	—
9	—

Pin Allocation Power Connector

Pin no.	Signal
1	V+
2	V-
3	—
4	—

2 Configuration

The configuration of the CAN@net NT 100 is possible via the Mini USB port or Ethernet. Configuration via the Mini USB port prevents from issues with security settings (e.g. firewall, administrator rights, unknown IP address) that can occur when configuring via Ethernet TCP/UDP broadcast. To create a configuration for the CAN@net NT 100 the CAN-Gateway Configurator is needed.

> **!** If the IP address of a device that is connected via Ethernet is unknown or invalid in the local network, the device can be found and the IP address can be changed in menu **Scan — IP configuration**.

2.1 VCI Mode

With the CAN@net II/VCI the VCI mode is supported for VCI V2, VCI 2.16, VCI V3, and VCI V4. The CAN@net NT is supported for VCI V4. HMS recommends to transfer the application to VCI V4, if the source code of the application is available.

If the source code of the application is not available:

- For applications that are programmed for VCI V2, driver VCI V4 and the VCI2on VCI4 Mapper are needed.

- VCI V3 and VCI V4 are compatible.

- If fixed values are used in the application (e.g. board name, firmware version), a transfer is only possible by adjusting the source code.

2.1.1 Transfer to CAN@net NT

► Download and install the latest version of the CAN-Gateway Configurator (from Ixxat support pages).

► Download the VCI V4 driver package (from Ixxat support pages).

If using a VCI V3 application:

► Install VCI V4.

► If fixed values are used in the application (e.g. board name, firmware version), adjust the source code to VCI V4.

If using a VCI V2 application and the source code is available:

► Transfer the application to VCI V4.

► Install VCI V4.

► If fixed values are used in the application (e.g. board name, firmware version), adjust the source code to VCI V4.

If using a VCI V2 application and the source code is not available:

► In the downloaded VCI V4 driver package, open folder **Add-ons** and install *VCI V2 API-Addon (VCI2 on VCI4)*.

> **!** If fixed values are used in the application (e.g. board name, firmware version), a transfer is only possible by adjusting the source code.

► Connect the CAN@net NT to the computer via USB.
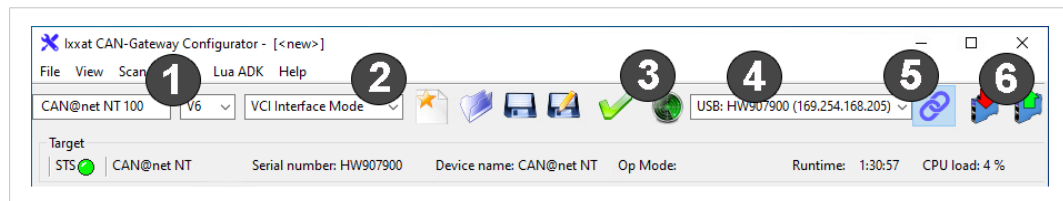
▸   Open the CAN-Gateway Configurator.

Fig. 1   CAN-Gateway Configurator

▸   Select the device type in use and the device version in use (**1**).

> **!**   The device is only found if the selected firmware version matches the firmware version of the connected device.

▸   Scan for devices with button **Scan** (**3**) and select the device in use in the combo box **Target Device** (**4**).

> **i**   *To change the IP of the device open menu **Target** and select **Change IP configuration** (see User Manual CAN@net NT for more information).*

▸   Click button **Connect** (**5**).

▸   Select operational mode **VCI interface** (**2**).

▸   Click button **Write to** (**6**) to write the configuration to the device.

▸   Configure the device in the Device Server Control (for more information see Installation Guide *VCI Driver*).

2.2   Generic Mode (ASCII)

CAN@net II/Generic and CAN@net NT 100 use different ASCII protocols, because the devices of the CAN@net NT family support up to four CAN channels, as well as more filter possibilities than the CAN@net II. The CAN@net NT 100 does not support the former ASCII protocol that was used with the CAN@net II.

2.2.1   Differences of the ASCII Protocol Versions

CAN@net II	CAN@net NT 100
d version	dev version
d proto	dev protocol
	dev interfaces
c stop	can 1 stop
c init 125	can 1 init std 125
	can 1 init listen 125
c init custom 00 14 High	can 1 init custom std 8/1/12/2
	can 1 init std 500 2000
c init auto	can 1 init auto
c filter clear	can 1 filter clear
c filter add 123	can 1 filter add std 0 0
	can 1 filter add ext 0 0
c filter remove 123	—
c filter enable	—
c filter disable	—
c filter load	—
c filter flash	—
c start	can 1 start
d config save	—
c status	can 1 status
m sd3 123 1 2 3 4	m 1 csd 123 01 02 03
	m 4 fed 1234 00 01 02 03...40
E Error Number Description	Rx: E 1 ERRORWARNINGSET
	Rx: E1 ERRORWARNINGRESET
	Rx: E1 BUSOF
I Heartbeat	—

For more information see Software Design Guide CAN@net NT Generic Protocol 2.1 for Gateway Mode V6.

2.2.2   Differences of ASCII Filter Functions

Both filters work as a positive filter list. Received messages that match an entry in the filter list are forwarded. All other messages are discarded.

The basis for the filter list of the CAN@net II and the CAN@net NT is different.

CAN@net II/Generic

The filter list contains CAN identifiers. Filtering only applies from the CAN system to the TCP/IP network. In reverse direction filtering is not available. Individual CAN identifiers can be added or removed the list via ASCII commands. If the filter list is disabled all messages are forwarded. For more information see User Manual CAN@net II/Generic.

By default, the filter is disabled and all messages are forwarded. With the CAN@net II filter can be loaded, changed and saved during operation. If the device is rebooted a saved filter is loaded.

CAN@net NT

The filter list contains identifier/mask values. The mask value specifies the bit-position of the identifier, which must be checked (for more information see Software Design Guide CAN@net NT Generic Protocol 2.1 for Gateway Mode V6). If a message passes several filters, the message is received several times.

Individual identifier/mask values can be added to the list. The filter can only be cleared completely.

Only messages that are entered in the filter list are forwarded. By default, no filter is set and all messages are rejected. To receive messages with the CAN@net NT at least one identifier/mask value filter must be added to the list.

With the CAN@net NT the filter can only be modified when the CAN@net NT is in *stopped* state. With the initialization the CAN controller loses its filter settings and all messages are rejected. Therefore the filter must be configured after initialization.

2.2.3   Transfer to CAN@net NT

► Download and install the latest version of the CAN-Gateway Configurator (from Ixxat support pages).

► Download the VCI V4 driver package (from Ixxat support pages).

► Adjust the application according to the different commands and the different filter functions.

► Connect the CAN@net NT to the computer via USB.
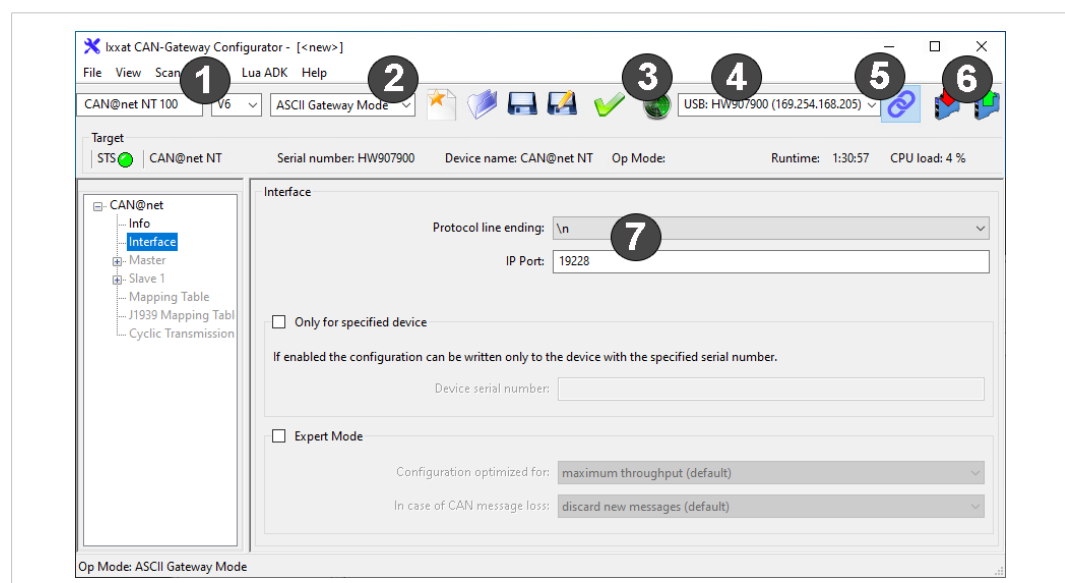
► Open the CAN-Gateway Configurator.

Fig. 2   CAN-Gateway Configurator ASCII interface

► Select the device type in use and the device version in use (**1**).

> **!**   The device is only found if the selected firmware version matches the firmware version of the connected device.

► Scan for devices with button **Scan** (**3**) and select the device in use in the combo box **Target Device** (**4**).

> **ℹ**   *To change the IP of the device open menu **Target** and select **Change IP configuration** (see User Manual CAN@net NT for more information).*

► Click button **Connect** (**5**).

► Select operational mode **ASCII Gateway Mode** (**2**).

► Configure the protocol line ending and define the IP port (**7**).

► Note the different default TCP ports:

– CAN@net NT: 19228

– CAN@net II/Generic: 19227

► Click button **Write to** (**6**) to write the configuration to the device.

2.3   Bridge Mode

With the CAN@net NT a Bridge that connects two CAN systems over an Ethernet/TCP/IP network can be configured with the CAN-Gateway Configurator. Automated transfer of Bridge configuration of the CAN@net II/Generic to the CAN@net NT is not possible.

► Connect the CAN@net NT Master device to the computer via USB.
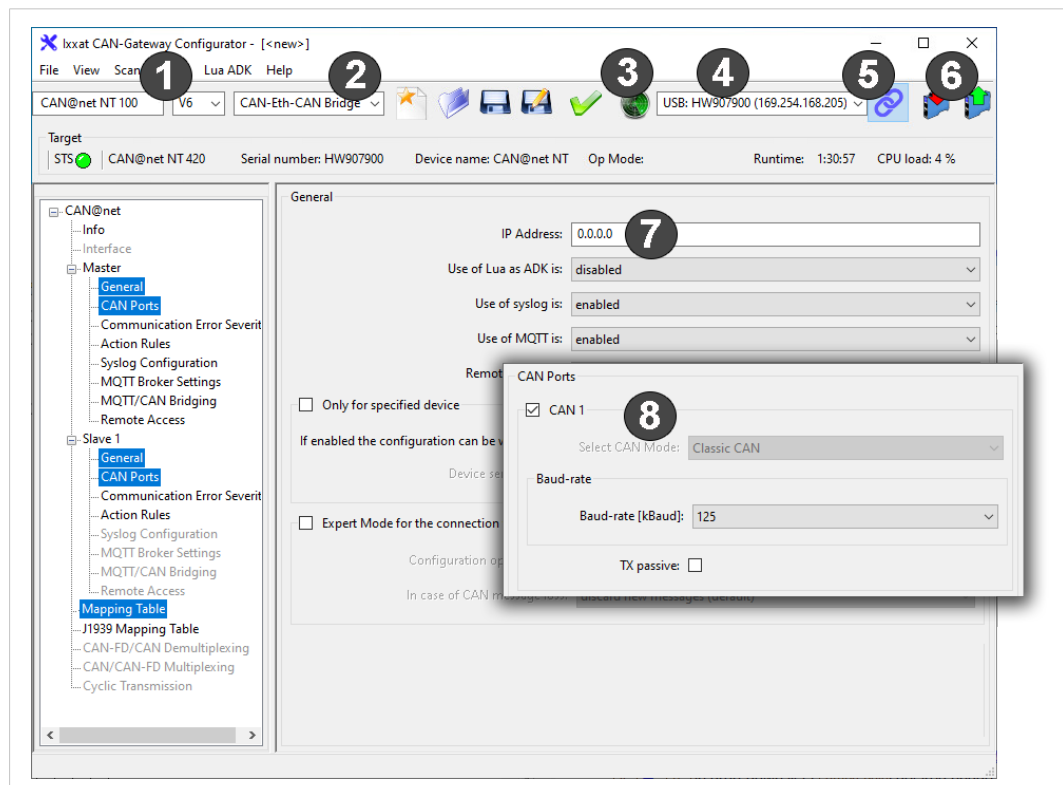
► Open the CAN-Gateway Configurator.

Fig. 3   CAN-Gateway Configurator CAN-Ethernet-CAN Bridge

► Select the device type in use and the device version in use (**1**).

> ❗ The device is only found if the selected firmware version matches the firmware version of the connected device.

► Scan for devices with button **Scan** (**3**) and select the device in use in the combo box **Target Device** (**4**).

► Click button **Connect** (**5**).

► Select operational mode **CAN-Eth-CAN Bridge** (**2**).

► In the configuration tree select **Master — General** and enter the IP address of the Master device (**7**).

> ❗ The connection to the devices only works if the correct IP address of the device is entered. To change the IP of the device open menu **Target** and select **Change IP configuration** (see User Manual *CAN@net NT* for more information).

► In the configuration tree select **Master — CAN Ports** and configure the baud rate settings (**8**) for the Master.

► In the configuration tree selecet **Slave 1 — General** and enter the IP address of the Slave device (**7**).

> ❗ The connection to the devices only works if the correct IP address of the device is entered. To change the IP of the device open menu **Target** and select **Change IP configuration** (see User Manual *CAN@net NT* for more information).

► In the configuration tree select **Slave 1 — CAN Ports** and configure the baud rate settings (**8**) for the Slave.

► To configure the filter, open mapping table (**7**) in the configuration tree.

► Add the desired filters to the list (see *Example of Filter Transfer, p. 9*).

> ❗ Only messages that are entered in the mapping table are forwarded. By default, no filter is set and all messages are rejected.

> ⓘ *The CAN@net NT provides various filter possibilities. For more information see User Manual CAN-Gateway Configurator in chapter Mapping Table.*

► Click button **Write to** (**6**) to write the configuration to the device.

► Connect the Slave device and write the same configuration to the device.

► Observe that for the configuration of a CAN-Ethernet-CAN Bridge each device must be configured with the same configuration file. If the configuration is changed, the new configuration file has to be downloaded again to all devices.

→ If the Status LED of the Master device is flashing green, Master and Slave are connected and the device is in *Operational* state.

→ If the Status LED of the Master device is flashing orange, the Master cannot connect to the Slave.

> ⓘ *To check the connection of Master and Slave, connect the Master device in the CAN-Gateway Configurator and open the dashboard.*

For information about more configuration possibilities see User Manual *CAN-Gateway Configurator*.

2.3.1   Example of Filter Transfer

ℹ️ *The CAN@net NT provides various filter possibilities. For more information see User Manual CAN-Gateway Configurator in chapter Mapping Table.*

Example 1

With the CAN@net II/Generic Bridge mode the identifiers which are added to the filter list are forwarded from CAN to TCP/IP.

CAN@net II filter of Master device:

- 0x2

- 0x10

- 0x11

CAN@net II filter of Slave device:

- 0x20

- 0x25

To forward the same CAN messages with the CAN@net NT the following must be entered in the mapping table.

	Rx Device	Rx Channel	Rx Msg Format	Rx Filter Type	Mask	Value	First	Last	Tx Device	Tx Channel	Tx Msg Format	Tx Base ID
0	Master	CAN1	Standard	identifier		0x2			Slave 1	CAN1	Standard	0
1	Master	CAN1	Standard	identifier		0x10			Slave 1	CAN1	Standard	0
2	Master	CAN1	Standard	identifier		0x11			Slave 1	CAN1	Standard	0
3	Slave 1	CAN1	Standard	identifier		0x20			Master	CAN1	Standard	0
4	Slave 1	CAN1	Standard	identifier		0x25			Master	CAN1	Standard	0
5												

Fig. 4   Identifier filter list in CAN-Gateway Configurator

Example 2

If no entries are added to the filter list of CAN@net II/Generic in Bridge mode all messages are forwarded. The CAN@net NT only forwards messages that are entered in the mapping table. Therefore to forward all messages with the CAN@net NT the following must be entered in mapping table.

	Rx Device	Rx Channel	Rx Msg Format	Rx Filter Type	Mask	Value	First	Last	Tx Device	Tx Channel	Tx Msg Format	Tx Base ID
0	Master	CAN1	Standard	mask/value	0	0			Slave 1	CAN1	Standard	0
1	Master	CAN1	Extended	mask/value	0	0			Slave 1	CAN1	Extended	0
2	Slave 1	CAN1	Standard	mask/value	0	0			Master	CAN1	Standard	0
3	Slave 1	CAN1	Extended	mask/value	0	0			Master	CAN1	Extended	0
4												

Fig. 5   Identifier filter list in CAN-Gateway Configurator