

## CAN@net NT

200 and 420

### USER MANUAL

4.01.0332.20000-EN 1.4 ENGLISH



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# Important User Information

## Liability

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# Table of Contents

Page

<b>1</b>	<b>User Guide .....</b>	<b>3</b>
1.1	Target Audience.....	3
1.2	Related Documents .....	3
1.3	Document History .....	3
1.4	Trademark Information .....	3
1.5	Conventions .....	4
<b>2</b>	<b>Safety Instructions.....</b>	<b>5</b>
2.1	General Safety Instructions.....	5
2.2	Intended Use .....	5
<b>3</b>	<b>Scope of Delivery .....</b>	<b>5</b>
<b>4</b>	<b>Product Description .....</b>	<b>6</b>
<b>5</b>	<b>Installation .....</b>	<b>7</b>
5.1	Installing the Software .....	7
5.2	Installing the Hardware.....	9
<b>6</b>	<b>Configuration .....</b>	<b>11</b>
6.1	Connecting Possibilities.....	11
6.2	Basic Configuration .....	12
6.3	Gateway Configuration.....	15
6.4	Bridge Configuration .....	16
6.5	VCI Interface Configuration.....	18
6.6	Reset to Factory Settings.....	19
6.7	Read and erase LOG File .....	19
<b>7</b>	<b>Operation.....</b>	<b>20</b>
7.1	Ethernet Port .....	20
7.2	Mini USB Port.....	20
7.3	Indicators .....	21

<b>8</b>	<b>Default Network Settings .....</b>	<b>23</b>
<b>9</b>	<b>TCP/UDP Ports.....</b>	<b>23</b>
<b>10</b>	<b>Technical Data.....</b>	<b>23</b>
<b>11</b>	<b>Support/Return Hardware .....</b>	<b>24</b>
11.1	Support.....	24
11.2	Return Hardware .....	24
<b>12</b>	<b>Disposal.....</b>	<b>24</b>
<b>A</b>	<b>Regulatory Compliance .....</b>	<b>25</b>
A.1	EMC Compliance (CE) .....	25
A.2	FCC Compliance Statement .....	25
A.3	Disposal and recycling .....	26

# 1 User Guide

Please read the manual carefully. Make sure you fully understand the manual before using the product.

## 1.1 Target Audience

This manual addresses trained personnel. Trained personnel are all persons who are familiar with the installation and use. The contents of the manual must be made available to any person authorized to use or operate the product.

## 1.2 Related Documents

Document	Author
Installation Guide <i>VCI Driver</i>	HMS
Software Design Guide <i>CAN@net NT 200/420 Generic Protocol for Gateway Mode</i>	HMS
User Manual <i>CAN-Gateway Configurator</i>	HMS

## 1.3 Document History

Version	Date	Description
1.0	July 2016	First release
1.1	October 2016	Adjusted to new IXXAT CAN-Gateway Configurator
1.2	July 2017	Changes in configuration tool, added CAN@net NT 420
1.3	November 2017	Minor corrections
1.4	April 2018	Moved parts of the configuration to user manual of CAN-Gateway Configurator

## 1.4 Trademark Information

IXXAT® is a registered trademark of HMS Industrial Networks. All other trademarks mentioned in this document are the property of their respective holders.

## 1.5 Conventions

Instructions and results are structured as follows:

- ▶ instruction 1
- ▶ instruction 2
  - ➔ result 1
  - ➔ result 2

Lists are structured as follows:

- item 1
- item 2

**Bold typeface** indicates interactive parts such as connectors and switches on the hardware, or menus and buttons in a graphical user interface.

```
This font is used to indicate program code and other
kinds of data input/output such as configuration scripts.
```

This is a cross-reference within this document: [Conventions, p. 4](#)

This is an external link (URL): [www.hms-networks.com](http://www.hms-networks.com)

Safety advice is structured as follows:

	<p>Cause of the hazard!</p> <p>Consequences of not taking remediate action.</p> <p>How to avoid the hazard.</p>
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Safety signs and signalwords are used dependent on the level of the hazard.

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 *This is additional information which may facilitate installation and/or operation.*

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	<p>This instruction must be followed to avoid a risk of reduced functionality and/or damage to the equipment, or to avoid a network security risk.</p>
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	<p><b>Caution</b></p> <p>This instruction must be followed to avoid a risk of personal injury.</p>
---	--

	<p><b>WARNING</b></p> <p>This instruction must be followed to avoid a risk of death or serious injury.</p>
---	--

## 2 Safety Instructions



Risk of interference to radio and television if used in office or home environment!

Use exclusively included accessories.

Make sure that the shield of the interface is connected with the device plug and the plug on the other side.

Use exclusively shielded cables.



Malfunction caused by extension cable!

According to the USB specification connect the interface directly or via an active USB hub to the computer. Do not use an extension cable.

### 2.1 General Safety Instructions

- ▶ Protect product from moisture and humidity.
- ▶ Protect product from too high or too low temperature (see [Technical Data, p. 23](#)).
- ▶ Protect product from fire.
- ▶ Do not throw, drop or try to bend the product.
- ▶ Do not paint the product.
- ▶ Do not modify or disassemble the product. Service must be carried out by HMS Industrial Networks.
- ▶ Do not use modified products.
- ▶ Store products in dry and dust-free place.

### 2.2 Intended Use

The components are used to connect computer systems to CAN and CAN FD networks and to connect the networks with each other. They are intended for installation on standard DIN rail.

## 3 Scope of Delivery

Included in scope of delivery:

- CAN@net NT
- 1 x power connector
- 2 x CAN connector (with CAN@net NT 200)  
4 x CAN connector (with CAN@net NT 420)
- User Manual *CAN@net NT*
- Installation Guide *VCI Driver*
- Mini USB cable

## 4 Product Description

The CAN@net NT hardware provides connectivity to Ethernet and CAN networks with various operational modes. The CAN@net NT 420 additionally is capable of CAN FD. The application firmware running on the CAN@net NT provides functions to access a CAN bus from virtually every Ethernet TCP/IP host. Any Ethernet TCP/IP host can connect to this server and exchange commands and CAN messages with it using the ASCII protocol. The server relays the commands and messages to the CAN bus and vice versa.

The CAN@net NT application firmware includes a filtering mechanism that is based on CAN identifiers. Filtering applies in the direction from CAN system to TCP/IP network. Certain CAN messages can be forwarded and others discarded. The CAN@net NT provides message filtering for Gateway and Bridge mode. In the Gateway mode the filter can be configured by means of ASCII commands. In the Bridge mode the configuration tool is used to configure the filter. With the VCI driver the CAN@net NT can be used as a PC interface.

### Operational Modes

- VCI Interface Mode
- ASCII Gateway Mode
- Local CAN Bridge
- CAN-Ethernet-CAN Bridge with 2 devices
- CAN-Ethernet-CAN Bridge with 3 devices (only with CAN@net NT 420)
- CAN-Ethernet-CAN Bridge with 4 devices (only with CAN@net NT 420)

### Features

- CAN@net NT 200: 2 x CAN connections, ISO 11898-2 (terminal adapters)
- CAN@net NT 420: 4 x CAN connections, ISO 11898-2 (terminal adapters), two connections can be switched between Classic CAN and CAN FD
- 1 x RJ45 Ethernet port, 10/100 Mbit/s
- 1 x mini USB 2.0 port, high-speed
- configuration via USB or Ethernet
- With the CAN-Gateway Configurator a configuration can be created, modified, written to and read from the target device via USB or Ethernet connection.
- Gateway and Bridge mode possible
- platform independent due to ASCII protocol
- Classic CAN/ CAN FD ID filtering
- Classic CAN to CAN FD mapping and CAN FD to Classic CAN mapping (with NT 420)
- cyclic transmission of CAN messages
- MQTT and syslog functionality
- command line program CANGWfile
- action rules via if-this-action-then-that-event functionality

## 5 Installation

### 5.1 Installing the Software

#### 5.1.1 Installing the Driver

For the operation of the CAN-Gateway Configurator and the CAN@net VCI mode a driver is needed.



*The VCI driver is constantly improved and expanded! Check if a newer version is available within the support area on [www.ixxat.com](http://www.ixxat.com).*

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#### Windows

- ▶ Install the VCI driver (see Installation Guide *VCI Driver*).

#### 5.1.2 Installing the CAN-Gateway Configurator



*The CAN-Gateway Configurator is constantly improved and expanded! Check if a newer version is available within the support area on [www.ixxat.com](http://www.ixxat.com).*

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- ▶ Download the *CAN-Gateway Configurator CANbridge NT & CAN@net NT 200/420* package from [www.ixxat.com](http://www.ixxat.com).
- ▶ Run *cangwconfig.exe*.
  - Installation wizard starts automatically.
- ▶ Follow instructions in installation program.

### 5.1.3 Updating the Device Firmware



Whether updating is permitted via Ethernet or a password is needed, is defined in the security settings of the CAN-Gateway Configurator. The default password is IXXAT. For further information see user manual *CAN-Gateway Configurator*.



*The firmware is constantly improved and expanded! Check if a newer firmware version is available within the support area on [www.ixxat.com](http://www.ixxat.com).*

To use all features the latest firmware versions of the CAN-Gateway Configurator and of the CAN@net NT must be installed.

If the current firmware of the CAN@net NT in use is V4 or older:

- ▶ Contact IXXAT support on [www.ixxat.com](http://www.ixxat.com) for information about updating to V5.

If the current firmware of the CAN@net NT in use is V5:

- ▶ Check if newer firmware is available on [www.ixxat.com](http://www.ixxat.com).
- ▶ Download the firmware package.
- ▶ Make sure, that the device is connected to power supply.
- ▶ Connect the device to the computer.
- ▶ Start the CAN-Gateway Configurator.
- ▶ Open menu **Target** and select **Update Firmware**.
- ▶ Select the firmware package and click button **Start**.
  - ➔ Firmware of the connected device is updated.



*For information about the update of the CAN-Gateway Configurator and existing configurations see User Manual CAN-Gateway Configurator.*

## 5.2 Installing the Hardware



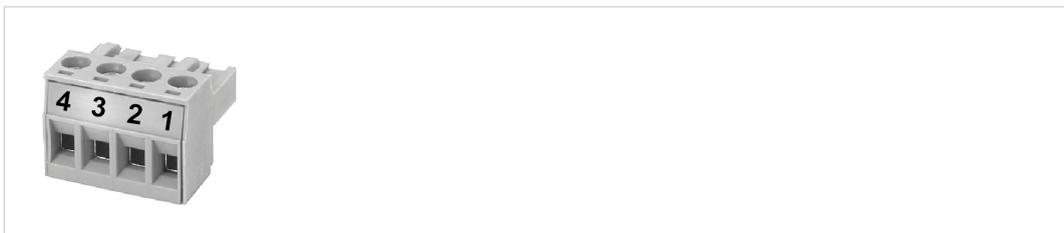
**Fig. 1 Connectors**

1	CAN 1
2	CAN 2
3	Power connector
4	CAN 3 (only with CAN@net NT 420)
5	CAN 4 (only with CAN@net NT 420)

- ▶ Make sure that the cross-sectional area of the cable is larger than or equal to 0.14 mm<sup>2</sup>.
- ▶ To remove the connector, use screwdriver or similar tool.
- ▶ Connect the cables.
- ▶ Plug the connector into the housing.

The shield of the CAN connector is connected to the device ground and the PE on the back of the device (DIN rail) via a 1 MΩ resistor and a 10 nF capacitor. To achieve highest interference immunity, ground the shield of the CAN cable.

### 5.2.1 Power Connector



**Fig. 2 Power connector**

#### Pin Allocation of Power Connector

Pin no.	Signal
1	V+ (+9 V to +32 V DC)
2	V-
3	—
4	—

## 5.2.2 CAN and CAN FD Connectors

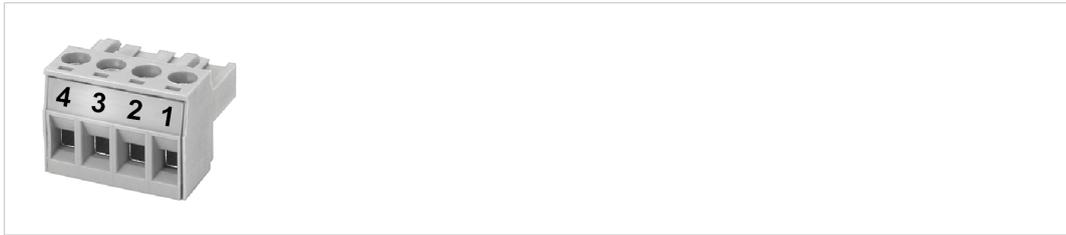


Fig. 3 CAN/CAN FD connector

### Pin Allocation of CAN and CAN FD Connectors

Pin no.	Signal
1	CAN high
2	CAN low
3	CAN GND
4	Shield

If a D-Sub 9 connector is used, observe the following pin allocation of the D-Sub 9 connector:

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

## 6 Configuration



Whether changing the configuration is permitted via Ethernet or a password is needed is defined in the security settings of the CAN-Gateway Configurator. The default password is IXXAT. For further information see user manual *CAN-Gateway Configurator*.

### 6.1 Connecting Possibilities

There are different possibilities to connect the CAN@net NT. Depending on the type of connection different ways of configuring the IP address and the device are necessary.

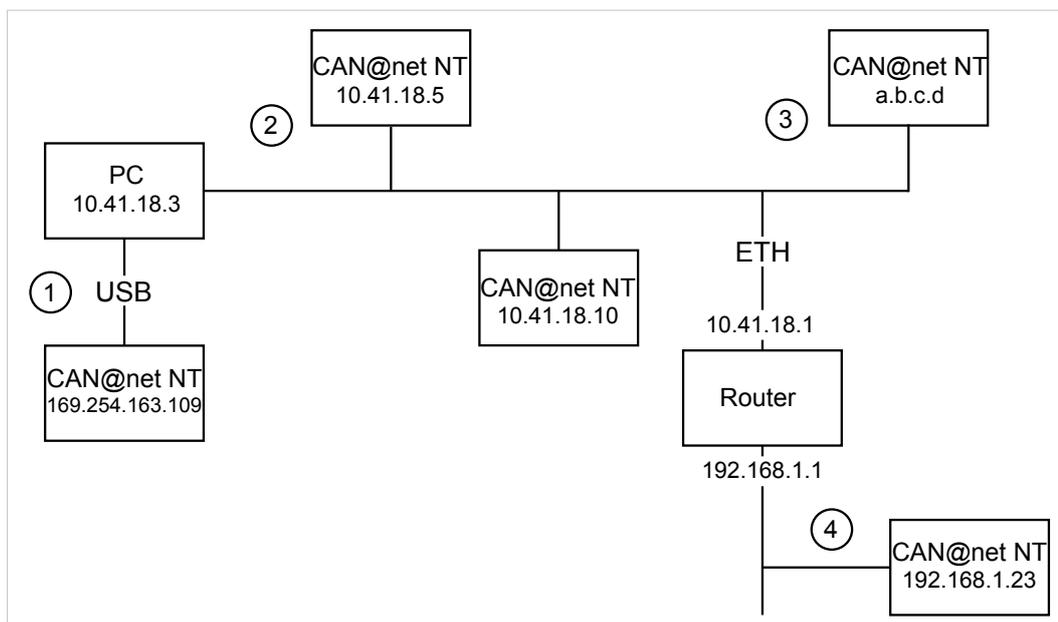


Fig. 4 Types of connection

The following ways of connecting the devices for the configuration are possible:

- (1) via USB (recommended for the first configuration of the device)
- (2/3) via Ethernet in a locale network
- (4) via Router (IP address of device has to be known)



Malfunction caused by extension cable!

According to the USB specification connect the interface directly or via an active USB hub to the computer. Do not use an extension cable.

## 6.2 Basic Configuration



CAN@net NT 200 and CAN@net NT 420 can not be combined. For CAN-Ethernet-CAN Bridges use either NT 200 devices or NT 420 devices.

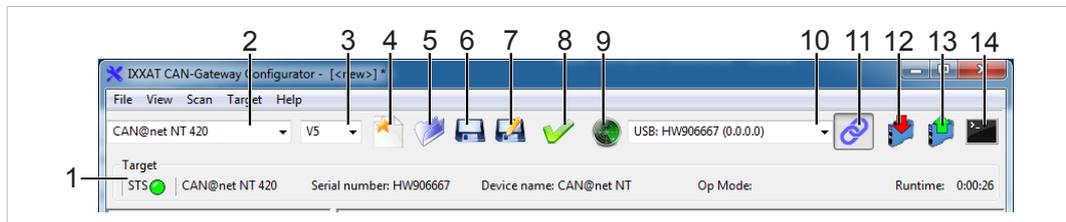


Fig. 5 CAN-Gateway Configurator

1	Information about target device ( <b>ST5</b> reflects Power LED of device)
2	Drop-down list <b>Select device type</b>
3	Drop-down list <b>Select device version</b>
4	Button <b>New</b>
5	Button <b>Open</b>
6	Button <b>Save</b>
7	Button <b>Save as</b>
8	Button <b>Verify</b>
9	Button <b>Scan</b>
10	Combo box <b>Target device</b>
11	Button <b>Connect</b>
12	Button <b>Write to</b>
13	Button <b>Read from</b>
14	Terminal window

### 6.2.1 Prerequisites and Initial Settings

To use all features the latest firmware versions of the CAN-Gateway Configurator and the CAN@net NT must be installed.

- ▶ Make sure that the latest VCI driver is installed.
- ▶ Connect a device to the host computer (see [Connecting Possibilities, p. 11](#)).
- ▶ Start the CAN-Gateway Configurator.
- ▶ Check [www.ixxat.com/support](http://www.ixxat.com/support) for the latest firmware versions of the CAN-Gateway Configurator and the CAN@net as well as for Update Guidelines.
- ▶ Make sure, that the latest CAN-Gateway Configurator is installed.
- ▶ Make sure that the CAN@net is updated to the latest firmware.
- ▶ Select the type of CAN@net NT in use in drop-down list **Select device type (2)**.
- ▶ Select the version in use of the CAN-Gateway Configurator in drop-down list **Select device version (3)**.

## 6.2.2 Configuring the IP Address



Device is only found by scanning, if correct device type and correct device version are selected. Make sure, that device type and device version are selected according to the connected device.



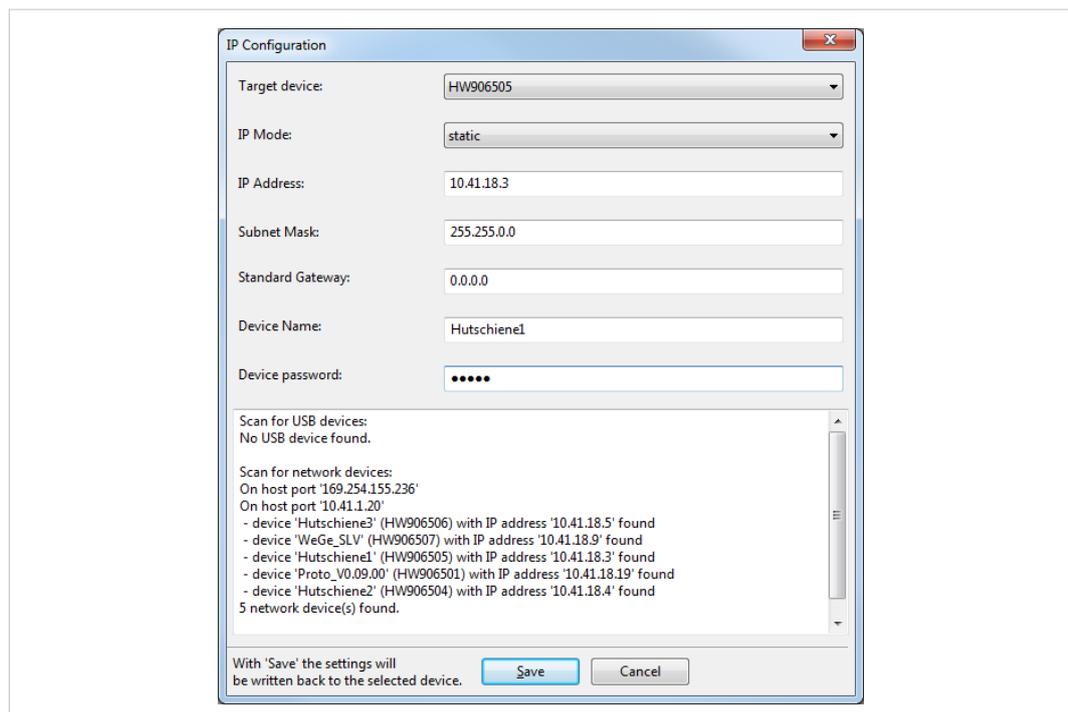
HMS Industrial Networks recommends to use a static IP address.

### If device is connected via a router:

- ▶ Enter the IP address (see [Default Network Settings, p. 23](#)) in CAN-Gateway Configurator in combo box **Target Device (9)**.
- ▶ Connect the device in CAN-Gateway Configurator (see [Connecting the Device in CAN-Gateway Configurator, p. 14](#)).

### If device is connected via USB or via Ethernet in local network:

- ▶ Open menu **Scan** in menu bar and select **Change IP configuration**.
  - ➔ Window **IP Configuration** is opened.
  - ➔ CAN-Gateway Configurator scans automatically for connected devices of predefined type and version number.



**Fig. 6 IP configuration**

- ▶ Make sure that the serial number in drop-down list **Target Device** points to the connected device.
- ▶ If necessary define a new IP address.
- ▶ Make sure that the IP address is in the range of the network in which the device is integrated.
- ▶ Define the network settings.

- ▶ Enter password (default: IXXAT) in field **Device password**.
- ▶ To write the new IP configuration to the target device click button **Save**.
- ▶ If the CAN@net NT is connected via a router, configure the IP address again after the device is configured.
- ▶ Connect the device in CAN-Gateway Configurator (see [Connecting the Device in CAN-Gateway Configurator, p. 14](#)).



HMS Industrial Networks recommends to change the default password. See User Manual CAN-Gateway Configurator for further information.

### 6.2.3 Connecting the Device in CAN-Gateway Configurator

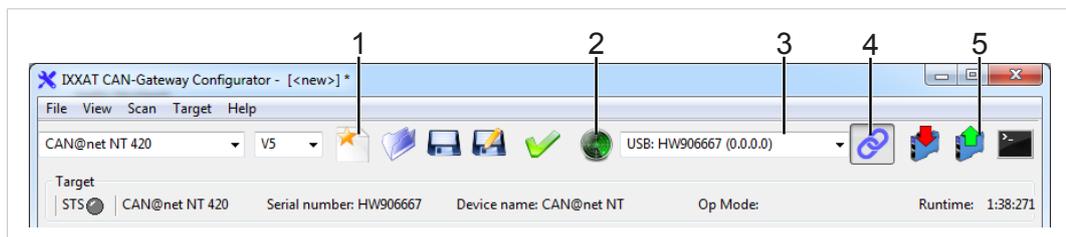


Fig. 7 CAN-Gateway Configurator

- ▶ Connect a device to the host computer (see [Connecting Possibilities, p. 11](#)).
  - ▶ Make sure, that all prerequisites are met and that all initial settings are done (see [Prerequisites and Initial Settings, p. 12](#)).
  - ▶ Configure the IP address (see [Configuring the IP Address, p. 13](#)).
  - ▶ To find the device, click button **Scan (2)** in the CAN-Gateway Configurator.
  - ▶ In combo box **Target Device (3)** select the device in use.
- or
- If the device is configured via a router, enter IP address in combo box **Target Device (3)**.
- ▶ Click button **Connect (4)** to connect the selected device.
  - ▶ To create a new project file, click button **New (1)**.
- or
- To change an existing configuration, click button **Read from (5)** and save the configuration.
- ▶ Configure the device in the desired mode (see [Gateway Configuration, p. 15](#), [Bridge Configuration, p. 16](#) or [VCI Interface Configuration, p. 18](#)).

## 6.3 Gateway Configuration

### 6.3.1 Description of Gateway Mode

In the Gateway mode, the CAN@net NT is hooked to the local intranet or internet (firewall needed). This allows a TCP/IP host within the reach of this intranet or internet to connect to the CAN@net NT and gain control of the CAN system.

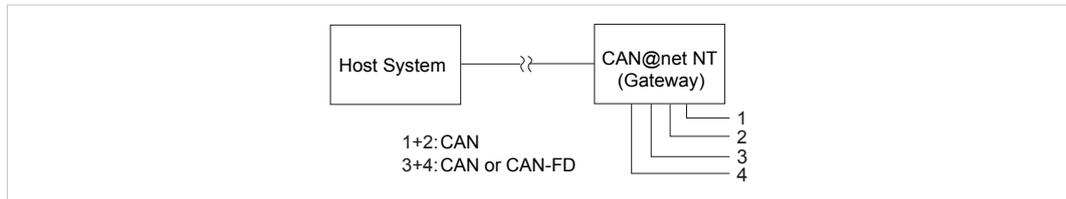


Fig. 8 Gateway mode

For information about the communication in Gateway mode and commands that are used to exchange CAN messages see Software Design Guide *CAN@net NT 200/420 Generic Protocol for Gateway Mode* on [www.ixxat.com](http://www.ixxat.com).

### 6.3.2 Configuring the Device

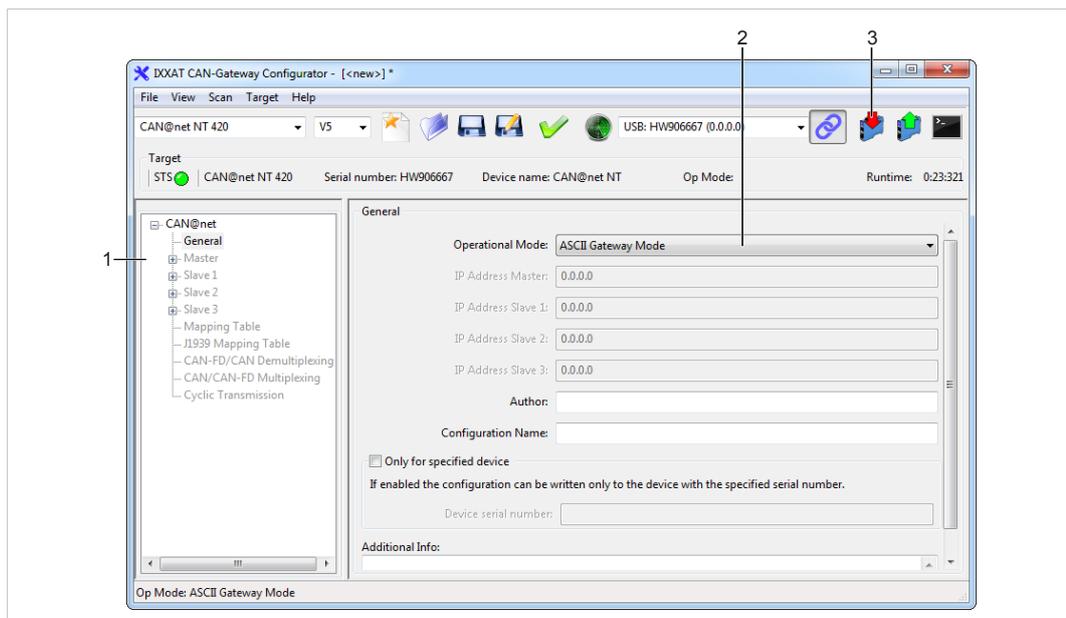


Fig. 9 ASCII Gateway Mode

- ▶ Make sure that the device is connected (see [Connecting Possibilities, p. 11](#)) and that the basic configurations are set (see [Basic Configuration, p. 12](#)).
- ▶ In configuration tree (1) select **CAN@net — General**.
- ▶ In drop-down list **Operational Mode** (2) select **ASCII Gateway Mode**.
- ▶ To write the configuration to the device, click button **Write to** (3).
- ▶ To exchange messages in the Gateway mode, use ASCII commands (for further information see Software Design Guide *CAN@net NT 200/420 Generic Protocol for Gateway Mode* on [www.ixxat.com](http://www.ixxat.com)).



*It is possible to add information about the configuration in fields **Author**, **Configuration Name** and **Additional Info**.*

## 6.4 Bridge Configuration

**!** Exclusively one master device is allowed in the Bridge mode.

### 6.4.1 Possible Operational Modes

With the CAN@net NT the Bridge mode allows to connect CAN systems over an Ethernet TCP/IP network, for example the local intranet or the internet (firewall needed). Minimum two devices are required for a CAN-Ethernet-CAN bridge. One must be configured as master and one as slave. A single device can be used as Local CAN bridge, which allows to map individual messages from and to each CAN port of the device.

#### Possible Bridge Modes with CAN@net NT 200:

- Local CAN Bridge
- CAN-Ethernet-CAN Bridge with 2 devices

#### Possible Bridge Modes with CAN@net NT 420:

- Local CAN Bridge
- CAN-Ethernet-CAN Bridge with 2 devices
- CAN-Ethernet-CAN Bridge with 3 devices
- CAN-Ethernet-CAN Bridge with 4 devices

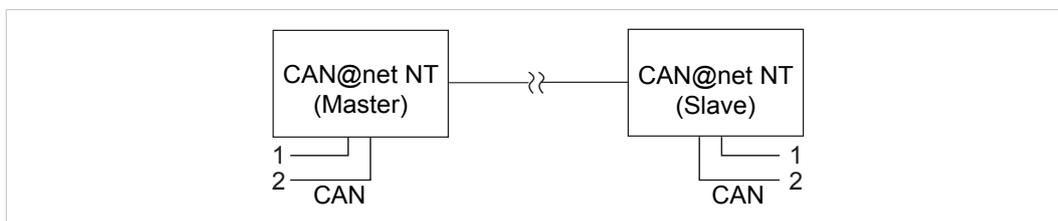


Fig. 10 CAN-Ethernet-CAN Bridge with 2 devices (NT 200)

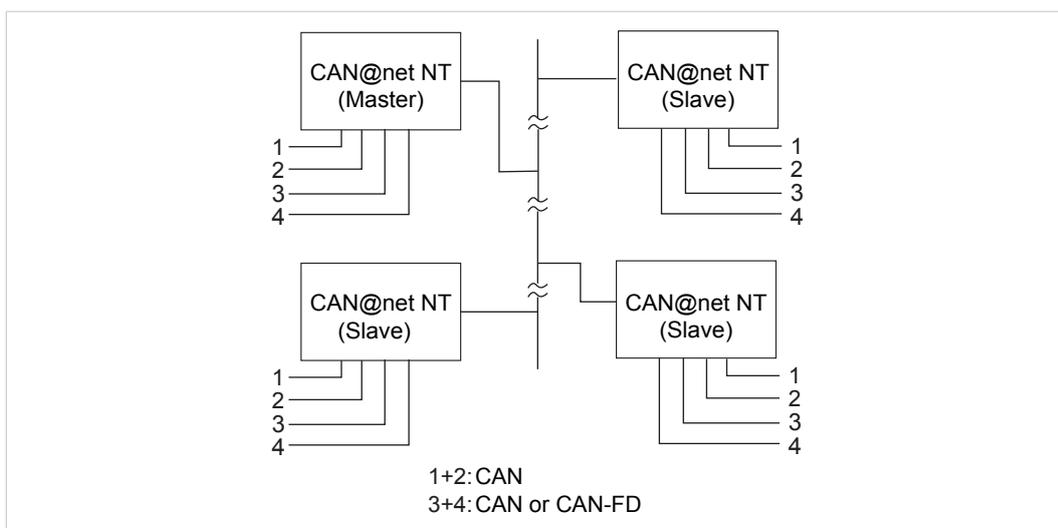


Fig. 11 CAN-Ethernet-CAN Bridge with 4 devices (NT 420)

## 6.4.2 Configuring the Devices

To build a Bridge configuration all devices must be configured in one configuration file. The configuration can be set for one device and then downloaded to the other devices (Master, Slave 1 to 3). In the Local CAN Bridge mode only one device is connected and has to be configured.



Configuration fails, if the individual devices of a CAN-Ethernet-CAN Bridge are configured from different configuration files! 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.

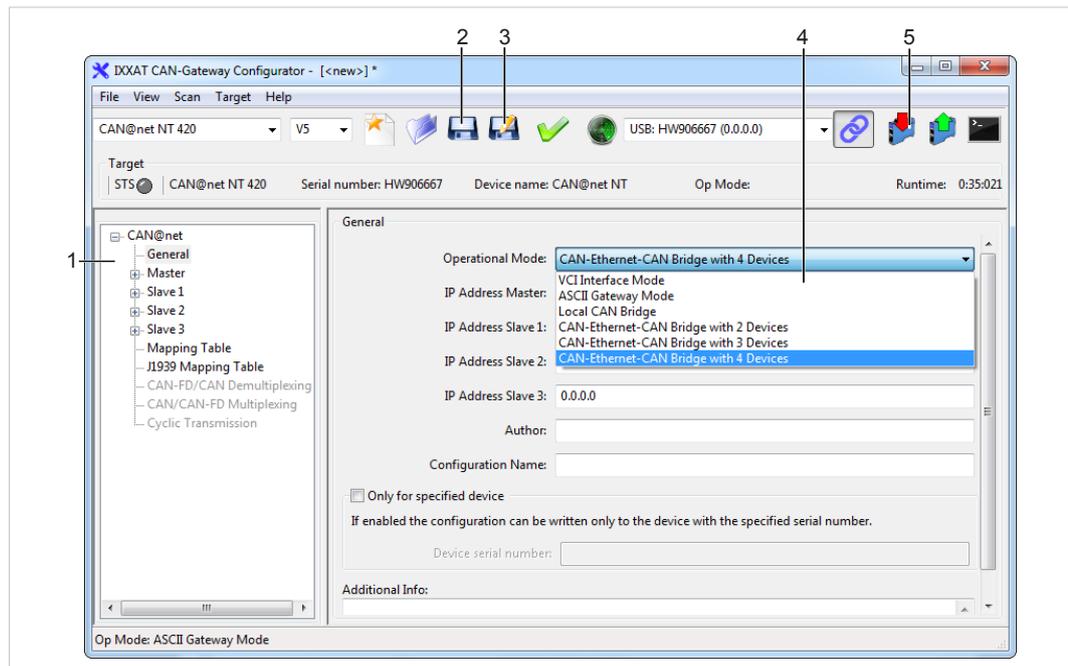


Fig. 12 CAN-Gateway Configurator CAN@net NT 420

- ▶ Configure the IP address of each device used in the Bridge (see [Configuring the IP Address](#), p. 13).
  - ▶ Connect the Master device to the host computer (see [Connecting Possibilities](#), p. 11).
  - ▶ Make sure that the basic configurations are set (see [Basic Configuration](#), p. 12).
  - ▶ In configuration tree (1) select **CAN@net — General**.
  - ▶ For a CAN-Ethernet-CAN Bridge select in drop-down list **Operational Mode (4) CAN-Ethernet-CAN Bridge with x slaves** according to the number of connected slaves.
- or
- ▶ For a Local CAN Bridge select **Local CAN Bridge** in drop-down list **Operational Mode (4)**.
  - ▶ If CAN-Ethernet-CAN Bridge is selected, enter the IP addresses of the Master device and of all connected Slave devices.
  - ▶ Configure the baud rate settings for the CAN ports of the Master device and of all Slave devices and the mapping table (for further information see User Manual *CAN-Gateway Configurator* on [www.ixxat.com](http://www.ixxat.com)).
  - ▶ For descriptions of the further configuration possibilities see User Manual *CAN-Gateway Configurator*.
  - ▶ After the configuration click button **Write to (5)** to write the configuration to device.

- ▶ Click button **Save (2)** or **Save as (3)** to save the configuration.
- ▶ For the CAN-Ethernet-CAN Bridge connect the devices one after another and download the configuration to each 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.

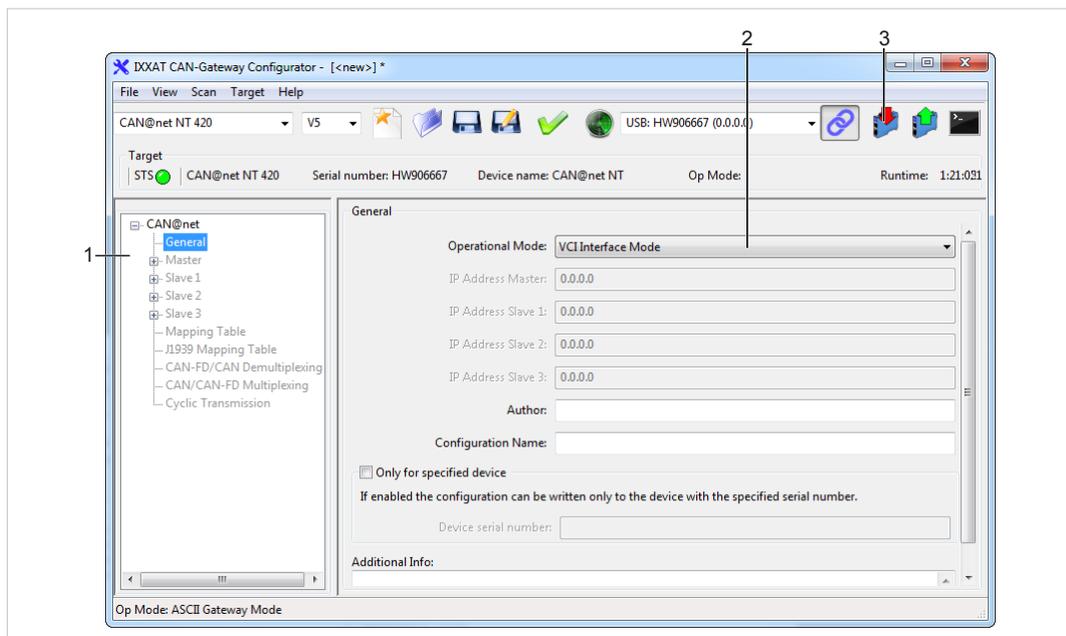
 *It is possible to add information about the configuration in fields **Author**, **Configuration Name** and **Additional Info**.*

## 6.5 VCI Interface Configuration



The VCI interface mode is only possible via Ethernet.

With the VCI driver the CAN@net NT can be used as a PC interface. All VCI-based IXXAT tools as well as customer-specific applications based on the VCI driver can be used. The VCI driver offers the possibility to communicate with up to 128 CAN@net NT devices via LAN or internet.



**Fig. 13 VCI Interface Mode**

- ▶ Make sure that the device is connected (see [Connecting Possibilities, p. 11](#)) and the basic configurations are set (see [Basic Configuration, p. 12](#)).
- ▶ In configuration tree (1) select **CAN@net — General**.
- ▶ In drop-down list **Operational Mode (2)** select **VCI Interface Mode**.
- ▶ To write the configuration to the device, click button **Write to (3)**.
- ▶ Configure the Device Server (see Installation Guide *VCI Driver*).

 *It is possible to add information about the configuration in fields **Author**, **Configuration Name** and **Additional Info**.*

## 6.6 Reset to Factory Settings

It is possible to reset a connected device to factory settings.

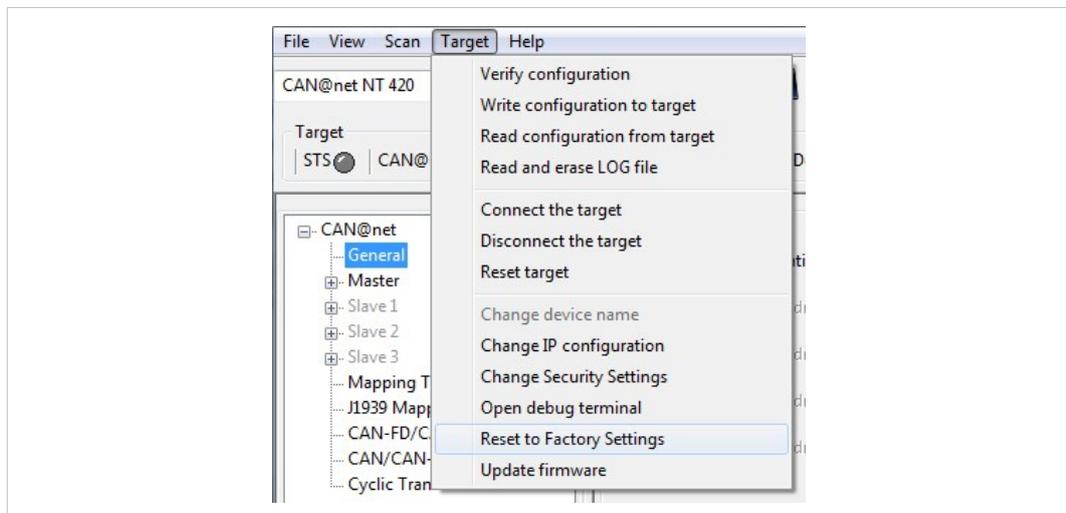
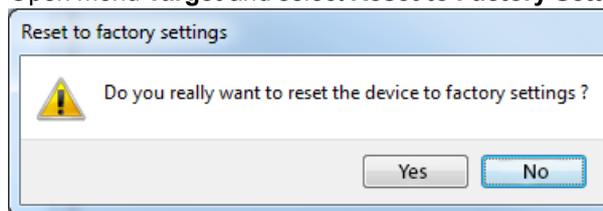


Fig. 14 Menu Reset to factory settings

- ▶ Make sure that the device is connected via USB.
- ▶ Open menu **Target** and select **Reset to Factory Settings**.



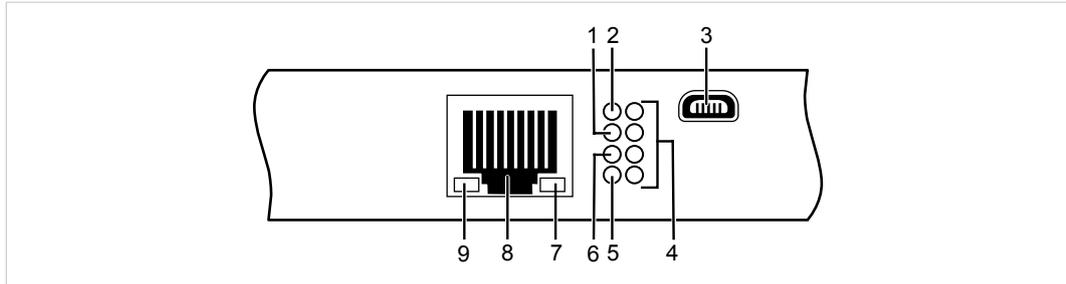
- ▶ Click button **Yes** to confirm the reset.

## 6.7 Read and erase LOG File

A log file can be used to detect errors, for example for the IXXAT support.

- ▶ Open menu **Target** and select **Read and erase LOG file**.
  - ➔ Window **Save Log File As** is opened.
- ▶ Define a file name and save the file.
  - ➔ .txt-file is created.

## 7 Operation



**Fig. 15** Ports and LEDs

1	Status LED
2	Power LED
3	Mini USB port
4	CAN LEDs 1 to 4
5	User LED
6	Ethernet LED
7	Link speed LED
8	Ethernet port
9	Link/Activity LED

### 7.1 Ethernet Port

Designed as standard RJ45 port with pin allocation according to Ethernet standard. Because of the Ethernet PHY auto-crossover feature the device can be connected with a crossover cable or with a one-to-one network cable.

The shield of the port is connected to the ground of the printed board via a 1 nF capacitor.

#### Pin Allocation Ethernet Port

Pin no.	Signal
1	TX+
2	TX-
3	RX+
4	Connected to pin 5
5	Connected to pin 4
6	RX-
7	Connected to pin 8
8	Connected to pin 7

### 7.2 Mini USB Port

Provided to connect the device for configuration.

## 7.3 Indicators

### 7.3.1 Power LED

Indicates the status of the power supply.

LED state	Description	Comments
Off	No power	Possible causes: device not connected to power supply, fuse of device damaged, internal power supply damaged, power supply not sufficient
Green	Power	Device fully functional

### 7.3.2 Status LED

Indicates the device status.

LED state	Description	Comments
Off	Device not ready	No firmware, application firmware not started
Green flashing (1 Hz)	Application firmware started	Device in <i>Operational</i> state
Red/green flashing	Configuration file error	Rewriting of configuration to device necessary
Green/orange flashing	Device in <i>Configuring</i> state	—
Orange flashing (1 Hz)	Automatic baud rate detection	Ongoing automatic baud rate detection
Red flashing	Device error	Application signals a device error, error in configuration or no configuration. Read log file for further information (see <a href="#">Read and erase LOG File, p. 19</a> ).

### 7.3.3 User LED

Indicates the primary application status and is different, depending on the operating mode.

#### Bridge

In the Bridge mode the User LED can be configured with user defined settings via Action Rules. See User Manual *CAN-Gateway Configurator* for further information.

#### VCI Interface

The User LED is not used.

#### ASCII Gateway

LED state	Description	Comments
Orange/Green flashing	No connection monitoring	—
Green flashing	Connection monitoring activated	Heartbeat mechanism to monitor the connection (PING REQUEST, PING RESPONSE)

### 7.3.4 Ethernet LED

Indicates the Ethernet communication status.

LED state	Description	Comments
Off	No Ethernet communication	Possible cause: <ul style="list-style-type: none"> <li>• Device unsuccessfully initialized</li> <li>• Device not connected to Ethernet</li> <li>• No communication</li> </ul>
Green flashing	TCP/IP packet transmitted successfully	Communication was successful
Orange flashing	TCP/IP packet not transmitted TCP/IP congestion	Bad or slow TCP/IP connection, messages can not be transmitted to CAN and are jammed

### 7.3.5 Link Speed LED

The yellow LED indicates the link speed.

LED state	Description
Off	10 MBit/s
Orange	100 MBit/s

### 7.3.6 Link/Activity LED

Indicates connection status of the Ethernet interface.

LED state	Description	Comments
Off	No link detected	No connection to Ethernet network, Network cable damaged
Green	Link	Ethernet connection established, no communication present
Green flashing	Activity	Ethernet connection established, communication present

### 7.3.7 CAN LED

CAN 1-4 LEDs indicate the status of the corresponding CAN interface.

LED state	Description	Comments
Off	No CAN communication	No connection to CAN
Orange flashing	Indicates a state of the automatic baud rate detection	—
Green flashing	CAN communication	LED is triggered with each CAN message
Green	CAN communication	Device in <i>Operational</i> state, no messages on CAN bus
Red flashing	CAN communication, CAN controller in <i>Error</i> state	CAN controller in <i>Error Warning</i> or <i>Error Passive</i> state, reception/transmission of CAN messages possible
Red	Bus off	CAN controller is in <i>Bus Off</i> state, no CAN communication possible

## 8 Default Network Settings

Network parameter	Default setting	Remark
IP Mode	Static	
IP Address	169.254.y.x y = ((device serial number - 800 000) DIV 254) MOD 256 x = ((device serial number - 800 000) MOD 254) + 1	Like APIPA if no DHCP server is available. By scanning the network, all available devices can be found.
Subnet Mask	255.255.0.0	
Standard Gateway	0.0.0.0	
Device Name	CAN@net NT	
Device password	IXXAT	Transmitted MD5-encrypted

## 9 TCP/UDP Ports

	CAN@net	PC
<b>CAN Gateway Configurator</b>	Device scan and IP configuration: 15000/udp Device configuration (via TCP): 19229/tcp	Device scan and IP configuration: 15001/udp Device configuration (via TCP): 1024-65535/tcp
<b>VCI</b>	19229/tcp	1024-65535/tcp
<b>Gateway (ASCII Interface)</b>	19228/tcp	1024-65535/tcp
<b>Bridge (CAN-Ethernet-CAN)</b>	Slave: 19239/tcp Master: 1024-65535/tcp	—

## 10 Technical Data

Ethernet Interface	10/100 MBit/s, twisted pair
Dimensions	114.5 x 99 x 22.5 mm
Weight	Approx. 150 g
Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +85 °C
Power supply	9 V to 36 V DC
Current consumption	Typically 110 mA (at 24 V input voltage)
Housing material	Polyamide
Galvanic isolation	1 kV DC for 1 sec
CAN transceiver (CAN 1/CAN2)	SN65HVD251
CAN FD transceiver (CAN3/CAN4 with CAN@net NT 420)	MCP2562FDT
Max. number of bus nodes	120
CAN bus termination resistor	None
CAN baud rates	Classic CAN: 5 to 1000 kBaud CAN FD: 5 to 8000 kBaud
CAN pass through delay	Local CAN Bridge: 15-25 µs CAN-Ethernet-CAN Bridge: 4-6 ms
Startup time after power on	< 1 s
Processing time in Bridge mode	30 000-40 000 msg/s
Protection class	IP20

# 11 Support/Return Hardware

Observe the following information in the support area on [www.ixxat.com](http://www.ixxat.com):

- information about products
- FAQ lists
- installation notes
- updated product versions
- updates

## 11.1 Support

- ▶ For problems or support with the product request support at [www.ixxat.com/support](http://www.ixxat.com/support).
- ▶ If required use support phone contacts on [www.ixxat.com](http://www.ixxat.com).

## 11.2 Return Hardware

- ▶ Fill in the form for warranty claims and repair on [www.ixxat.com](http://www.ixxat.com).
- ▶ Print out the Product Return Number (PRN resp. RMA).
- ▶ Pack product in a physically- and ESD-safe way, use original packaging if possible.
- ▶ Enclose PRN number.
- ▶ Observe further notes on [www.ixxat.com](http://www.ixxat.com).
- ▶ Return hardware.

# 12 Disposal

- ▶ Dispose of product according to national laws and regulations.
- ▶ Observe further notes about disposal of products on [www.ixxat.com](http://www.ixxat.com).

# A Regulatory Compliance

## A.1 EMC Compliance (CE)



The product is in compliance with the Electromagnetic Compatibility Directive. More information and the Declaration of Conformity is found at [www.ixxat.com](http://www.ixxat.com).

## A.2 FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

<b>Product name</b>	CAN@net NT
<b>Model</b>	200/420
<b>Responsible party</b>	HMS Industrial Networks Inc
<b>Address</b>	35 E. Wacker Dr, Suite 1700 Chicago , IL 60601
<b>Phone</b>	+1 312 829 0601



Any changes or modifications not expressly approved by HMS Industrial Networks could void the user's authority to operate the equipment.



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and the receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

### A.3 Disposal and recycling



You must dispose of this product properly according to local laws and regulations. Because this product contains electronic components, it must be disposed of separately from household waste. When this product reaches its end of life, contact local authorities to learn about disposal and recycling options, or simply drop it off at your local HMS office or return it to HMS.

For more information, see [www.hms-networks.com](http://www.hms-networks.com).

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