

IO 420

EN User manual

164898-04



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## 1 About this document

This user manual describes the installation, commissioning and parameter setting of the GEZE IO 420. Installation and commissioning of the windows and doors are not part of this user manual.

### 1.1 Product description

With GEZE IO 420, GEZE components for door and window systems as well as the RWS-system of GEZE are "CLOSED". The IO 420 is a coupler module for the networking of components and for the integration of non-bus-compliant components in the GEZE system. This user manual describes the individual module types that can be implemented using this system.

### 1.2 Further documents

The components supplied by GEZE include the relevant data sheets with technical data. These must be heeded. All data sheets and further documents can also be found on the internet at [www.geze.com](http://www.geze.com).

### 1.3 Symbols and illustrations

#### Warning notices

In these instructions, warning notices are used to warn against material damage and injuries.

- ▶ Always read and observe these warning notices.
- ▶ Observe all measures marked with the warning symbol and warning word .

Warning symbol	Warning word	Meaning
–	<b>CAUTION</b>	Information to prevent property damage, to understand or optimise the operation sequences.

#### Further symbols and illustrations

Important information and technical notes are highlighted to explain correct operation.

Symbol	Meaning
	means "important note"
	means "additional Information"
	Symbol for an action: This means you have to do something. If there are several actions to be taken, keep to the given order.

#### Abbreviations

ANSI	American National Standards Institute	MBZ	
APDU	application layer protocol data unit	MS/TP	Master Slave Token Passing
B/IP	BACnet/IP broadcasting management device	NC	normally closed contact (normally closed)
BACnet	Building Automation and Control networks	NO	normally opened contact (normally open)
BMA	Fire alarm system	RWA	Smoke and heat extraction system
COV	change of value	SCT	Key switch
CP	Capacitor plate (capacitor power)	ST 220	Service terminal
DCC	Device communication control	TZ 320	Door control unit 320
EDE	Engineering Data Exchange	TE 200	Control panel 200
IQ Lock Aut	Motor lock for the passive leaf	VAT 220	Virtual display indicator board
IQ Lock EL	Motor lock	ZSU	Timer
KL 220	Terminal box 220	GF	Active leaf
KZF	Short-term release	SF	Passive leaf
MAC	medium access control	BMA	Fire alarm system
		RWS	Emergency exit system

## 2 Safety and responsibility

### 2.1 Fundamental safety precautions

- ▶ Use only original GEZE parts for repair work.
- ▶ Unauthorised changes to the system exclude GEZE's liability for any resulting damage.
- ▶ Primary protective measures are to be carried out on site.
- ▶ Follow the VDE 0100 and VDE 0815 standards when laying the cables

## 2.2 Assigning staff

Installation, commissioning and repair work must be performed by properly trained personnel authorised by GEZE.

## 2.3 Product liability

In compliance with the manufacturer's product liability as defined in the German "Product Liability Act", the instructions included here must be noted and followed. Failure to comply releases the manufacturer from his statutory liability. Only experts authorised by GEZE may carry out installation, functional checks and maintenance work.

## 2.4 Guidelines

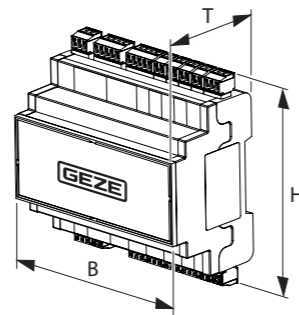
The GEZE IO 420 fulfils the following standards:

- DIN EN 61000-6-2: 2005 (in accordance with VDE 0839 Part 6-2 / March 2006)
- DIN EN 61000-6-6: 2007+ A1:2011 in accordance with VDE 0839 Part 6-3 / September 2011

## 3 Product overview/installation details

### 3.1 Technical data

<b>Device name:</b>	IO 420
<b>Function:</b>	universal IO modules
<b>Installation:</b>	Top hat rail mounting
<b>Main dimensions [mm] (W x H x D):</b>	107 x 111 x 59
<b>Operating voltage:</b>	24 V DC +/-15 % with reverse polarity protection
<b>Induced current intake:</b>	max. 300 mA at 24 V
<b>Total power consumption:</b>	2 A at 24 V
<b>Output current (pin 1 and 2):</b>	max. 1 A at 24 V
<b>Contact rating for relay:</b>	1 A at 30 V
<b>Operating temperature [°C]:</b>	-20 to 80°C
<b>Safety fuse:</b>	F900: Value 2.5 A



### 3.2 LEDs, connections and configuration of the IO 420

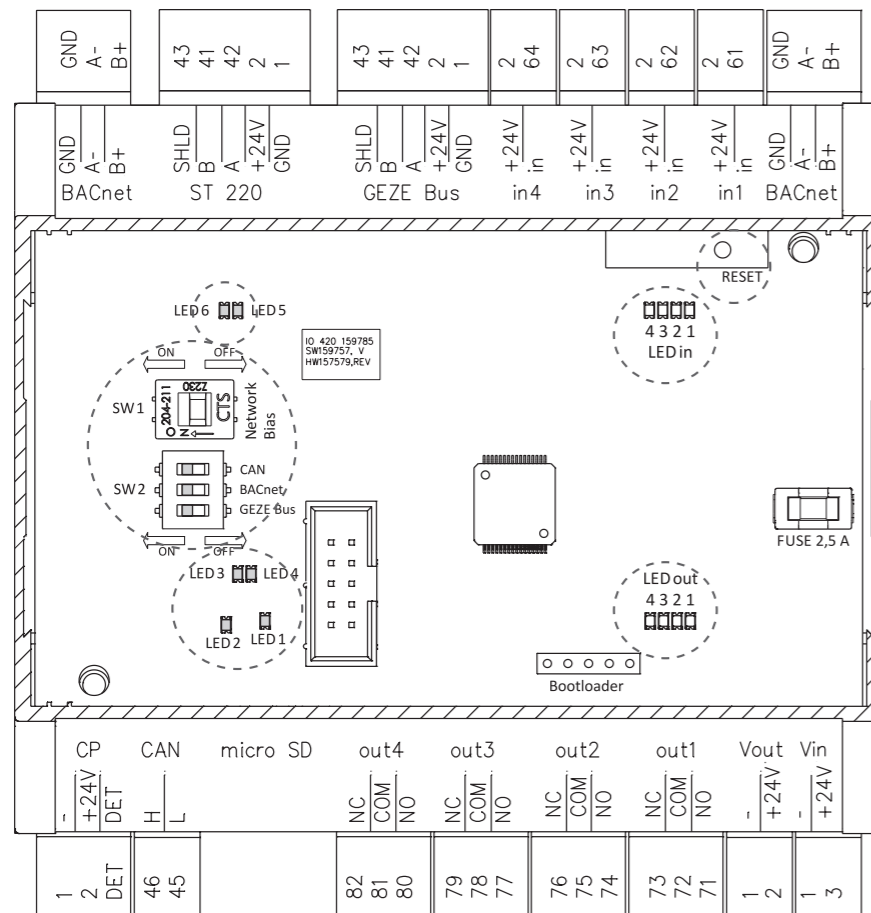


Fig. 1: LEDs and connections GEZE IO 420

### 3.2.1 LEDs

<b>LED 1 - (red)</b>	LED flashes if the microSD card is read or written.
<b>LED 2 - (yellow)</b>	LED lights up if "CP" (capacitor plate) is connected.
<b>LED 3 - (red)</b>	LED flashes in case of a fault.
<b>LED 4 - (green)</b>	LED flashes during normal operation.
<b>LED 5 - (green)</b>	LED lights up if voltage supply for microcontroller is active.
<b>LED 6 - (yellow)</b>	LED flashes if data is exchanged via BACnet.
<b>LED in - (green)</b>	LED-in 4/3/2/1 lights up if input "in" 4/3/2/1 is active.
<b>LED out - (red)</b>	LED-out 4/3/2/1 lights up if output "out" 4/3/2/1 is active.

### 3.2.2 Interfaces / GEZE IO 420

<b>Interfaces</b>	<ul style="list-style-type: none"> <li>▫ <b>CAN:</b> 50 kBit/s, used for CAN bus capable automatic doors and door control units from GEZE.</li> <li>▫ <b>ST 220:</b> used for ST 220, IQ-Aut passive leaf.</li> <li>▫ <b>GEZE-Bus:</b> used for IQ-Aut active leaf.</li> <li>▫ <b>BACnet:</b> used for BACnet MS/TP interface.</li> </ul>
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### 3.2.3 DIP switch configuration

<b>CAN:</b>	Terminating resistor "CAN" 120 Ohm ▶ Set the DIP switch at the start and end of the CAN-BUS to ON.
<b>BACnet:</b>	Terminating resistor "BACnet" 120 Ohm ▶ Set the BACnet DIP switch on the first and last IO 420 of the BACnet MS/TP bus to ON.
<b>GEZE-Bus:</b>	DIP switch terminating resistor "GEZE-Bus" 120 Ohm ▶ When GEZE motor lock or TZ 320 (connection for KL 220) is connected, set DIP switch to ON.
<b>Network bias:</b>	DIP switch "Network bias" ▶ Set the DIP switch to ON to enable the network bias for BACnet MS/TP. Only one bias may be enabled in a BACnet MS/TP network system.

### 3.2.4 microSD

<b>microSD card</b>	<p>The microSD card (SDHC) is written and read in the FAT16/32 file format. Other formats are not supported. The IO 420 files can be copied to a microSD card. The ST 220 is required for this. The data can be adapted further at the PC if necessary (parameter setting or change in BACnet name). A microSD card can then be used to load the profile to another IO 420 with the same firmware.</p> <p><b>The following files are created on the card:</b></p> <ul style="list-style-type: none"> <li>▫ Name file for BACnet names: "IO420_V1.BAC";</li> <li>▫ Configuration file: "IO420_V1.CON"; contains all parameters of the IO 420.</li> <li>▫ Log file: "IO420_00.LOG" to "IO420_39.LOG"; Depending on the setting, alarm messages and actions are written into the log file.</li> </ul>
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**!** If the LED for microSD card is flashing, the microSD card must not be taken out of the slot. The IO 420 must be de-energised for the microSD card to be removed and inserted.

### 3.2.5 Reset

<b>Reset push button</b>	<p>The factory settings can be restored using the reset push button.</p> <p><b>Carrying out a reset</b></p> <ul style="list-style-type: none"> <li>▶ De-energise the device.</li> <li>▶ Keep the reset button pressed on the printed circuit board.</li> <li>▶ Switch the voltage supply on. The device is restored to the factory settings after 6 seconds. LED 3 "fault" and LED 4 "normal mode" flash simultaneously in 0.4 second cycle.</li> <li>▶ Release the reset button when the LEDs start to flash.</li> <li>▶ To return the device to operating mode, switch the voltage supply off and on again.</li> </ul>
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### 3.3 BACnet for GEZE IO 420

#### Networked MS/TP devices

When MS/TP devices are networked, the line topology must always be observed. To avoid branch lines, each IO 420 has two BACnet connections.

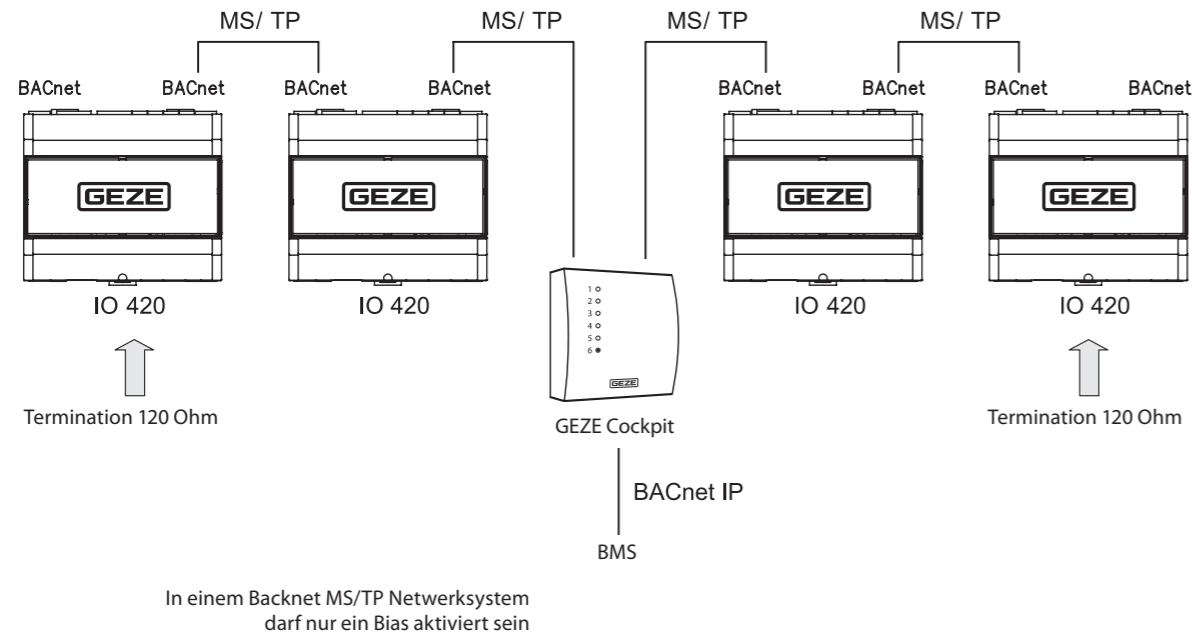


Fig. 2: Wiring of BACnet MS/TP and setting of terminating resistor and network bias.

A BACnet MS/TP network requires one active network-bias. The “BACnet” terminating resistor built inside the device must be switched on at the beginning and end of the bus using the respective DIP switch. Maximum 32 MS/TP devices can be connected in one segment.

The wiring must meet or exceed the BACnet and MS/TP EIA-485 network standard and be specified as follows:

- Shielded cable, pair-wise twisted.
- Impedance 100-130 Ohm.
- Capacity between the wires < 100 pF/m (30 pF/ft).
- Capacity between the wire and the shield < 200 pF/m (60 pF/ft).
- The maximum length of any individual segment is 900 m (AWG18 cable; wire cross-section 0.82 mm<sup>2</sup>). With large cable lengths, an amplifier may have to be integrated in the bus to guarantee function.

#### Standard setting of the interface:

- **Baud rate:** 76.8 kB
- **Data bit:** 8
- **Stop bit:** 1
- **Parity:** none

#### The following BACnet object types are used for the GEZE IO 420:

- **Device object** (one object)
- **Binary input** (up to four objects)
- **Multi state value** (up to ten objects)
- **Notification class object** (one object)

#### 3.3.1 Object structure of BACnet for GEZE IO 420

The IO 420 offers 14 module types, each of which can be used with up to 22 objects or in the software version IO 420 MBZ. The BACnet objects are adapted to the selected module type. The respective EDE lists can be found in the annex to this document.

Index	Project	Instance number	Description
1	Device object	1	contains the device description.
2	multistate value	1	shows the current module type.
3	multistate value	2	shows the current alarm message.

4	Binary input	1	assigned differently depending on the module type
5	Binary input	2	
6	multistate value	3	Status message
7	multistate value	4	Command
8	Notification class object	1	Object for alarm message
9	multistate value	5	Status message
10	multistate value	6	Command
11	Binary input	3	assigned differently depending on the module type
12	Binary input	4	
13	multistate value	7	Status message
14	multistate value	8	Command
15	multistate value	9	Status message
16	multistate value	10	Command
17	multistate value	11	alarm 1 for DCU
18	multistate value	12	alarm 1 for DCU
19	multistate value	13	alarm 1 for DCU
20	multistate value	14	Command
21	multistate value	15	Command
22	multistate value	16	Command

#### 3.3.2 Changing the object description

The object description is changed through the BACnet connection. Any BACnet configurator can be used for this purpose.

#### 3.3.3 Changing the BACnet parameters

The IO 420 has four BACnet parameters which can be set using the GEZE service terminal ST 220 or by editing the configuration file at the PC using the microSD card.

- **Device ID:** must be unambiguous in the BACnet network. It may not be allocated twice.
- **MAC address:** must be unambiguous in an MS/TP network.
- **Baud rate:** 76.8 kB (standard setting).
- **Instance number of “notification class object”:** The IO 420 only has one “notification class object” since there is only one object for alarm messages. In the factory setting, multi state value #2 is allocated to this, but it can be changed by the user. The value range is between 1 and 90.

#### 3.3.4 Changing the object name

This change is carried out by editing the name file “IO420.BAC” at the PC (microSD card).



If the LED for microSD card is flashing, the microSD card must not be taken out of the slot. The IO 420 must be de-energised for the microSD card to be removed and inserted.

- ▶ After the name file has been edited and entered, the following function must be carried out in the service menu for the changes to be applied: “Parameter SD-Card” --> “BAC-Name SD -> IO420”.

Title	Name of BACnet object
0.Device object	=BAC-PR47-232;
1.binary input 1	=GEZE047AE1E2EL32B125000801;
2.binary input 2	=GEZE047AE1E2EL32B225000801;
3.binary input 3	=not_used;
4.binary input 4	=not_used;
5.Multistate value 1	=module_type;
6.Multistate value 2	=GEZE047AE1E2EL32A106000801;
7.Multistate value 3	=TZ320_state;
8.Multistate value 4	=TZ320_command;
9.Multistate value 5	=alarm_details;
10.Multistate value 6	=not_used;
11.Multistate value 7	=not_used;
12.Multistate value 8	=not_used;
13.Multistate value 9	=not_used;
14.Multistate value 10	=not_used;
15.Multistate value 11	=not_used;





71.ZSUMASTER4_SUNDAY(0/1)	= 0;	Day configuration "ZSU master group 4"
72.ZSUMASTER4_MONDAY(0/1)	= 0;	0: as "ZSU master group 4" inactive on this day of the week
73.ZSUMASTER4_TUESDAY(0/1)	= 0;	1: as "ZSU master group 4" active on this day of the week
74.ZSUMASTER4_WEDNESDAY(0/1)	= 0;	
75.ZSUMASTER4_THURSDAY(0/1)	= 0;	
76.ZSUMASTER4_FRIDAY(0/1)	= 0;	
77.ZSUMASTER4_SATURDAY(0/1)	= 0;	
78.ZSUMASTER4_START_HH(0~23)	= 0;	Start time "ZSU master group 4"
79.ZSUMASTER4_START_MM(0~59)	= 0;	Specification of "hours" 0-23; specification of "minutes" 0-59
80.ZSUMASTER4_END_HH(0~23)	= 0;	End time "ZSU master group 4"
81.ZSUMASTER4_END_MM(0~59)	= 0;	Specification of "hours" 0-23; specification of "minutes" 0-59
82.ZSUMASTER5_ACTIVITY(0/1)	= 0;	0: as "ZSU master group 5" not active. 1: as "ZSU master group 5" active.
83.ZSUMASTER5_SUNDAY(0/1)	= 0;	Day configuration "ZSU master group 5"
84.ZSUMASTER5_MONDAY(0/1)	= 0;	0: as "ZSU master group 5" inactive on this day of the week
85.ZSUMASTER5_TUESDAY(0/1)	= 0;	1: as "ZSU master group 5" active on this day of the week
86.ZSUMASTER5_WEDNESDAY(0/1)	= 0;	
87.ZSUMASTER5_THURSDAY(0/1)	= 0;	
88.ZSUMASTER5_FRIDAY(0/1)	= 0;	
89.ZSUMASTER5_SATURDAY(0/1)	= 0;	
90.ZSUMASTER5_START_HH(0~23)	= 0;	Start time "ZSU master group 5"
91.ZSUMASTER5_START_MM(0~59)	= 0;	Specification of "hours" 0-23; specification of "minutes" 0-59
92.ZSUMASTER5_END_HH(0~23)	= 0;	End time "ZSU master group 5"
93.ZSUMASTER5_END_MM(0~59)	= 0;	Specification of "hours" 0-23; specification of "minutes" 0-59
94.DOOR1_SLAVEZSU_GR1(0/1)	= 0;	Slave assignment of door #1 to "ZSU master group" 1 to 5
95.DOOR1_SLAVEZSU_GR2(0/1)	= 0;	0: Door #1 is not part of this ZSU group
96.DOOR1_SLAVEZSU_GR3(0/1)	= 0;	1: Door #1 is part of this ZSU group
97.DOOR1_SLAVEZSU_GR4(0/1)	= 0;	
98.DOOR1_SLAVEZSU_GR5(0/1)	= 0;	
99.DOOR1_SLAVEZSU_ABORT(0/1)	= 0;	0: Time switch function for door #1 not interruptible 1: Time switch function for door #1 interruptible
100.DOOR2_SLAVEZSU_GR1(0/1)	= 0;	Slave assignment of door #2 to "ZSU master group" 1 to 5
101.DOOR2_SLAVEZSU_GR2(0/1)	= 0;	0: Door #1 is not part of this ZSU group
102.DOOR2_SLAVEZSU_GR3(0/1)	= 0;	1: Door #1 is part of this ZSU group
103.DOOR2_SLAVEZSU_GR4(0/1)	= 0;	
104.DOOR2_SLAVEZSU_GR5(0/1)	= 0;	
105.DOOR2_SLAVEZSU_ABORT(0/1)	= 0;	0: Time switch function for door #2 not interruptible 1: Time switch function for door #2 interruptible
106.DOOR3_SLAVEZSU_GR1(0/1)	= 0;	Slave assignment of door #3 to "ZSU master group" 1 to 5
107.DOOR3_SLAVEZSU_GR2(0/1)	= 0;	0: Door #3 is not part of this ZSU group
108.DOOR3_SLAVEZSU_GR3(0/1)	= 0;	1: Door #3 is part of this ZSU group
109.DOOR3_SLAVEZSU_GR4(0/1)	= 0;	
110.DOOR3_SLAVEZSU_GR5(0/1)	= 0;	
111.DOOR3_SLAVEZSU_ABORT(0/1)	= 0;	0: Time switch function for door #3 not interruptible 1: Time switch function for door #3 interruptible
112.DOOR4_SLAVEZSU_GR1(0/1)	= 0;	Slave assignment of door #4 to "ZSU master group" 1 to 5
113.DOOR4_SLAVEZSU_GR2(0/1)	= 0;	0: Door #4 is not part of this ZSU group
114.DOOR4_SLAVEZSU_GR3(0/1)	= 0;	1: Door #4 is part of this ZSU group
115.DOOR4_SLAVEZSU_GR4(0/1)	= 0;	
116.DOOR4_SLAVEZSU_GR5(0/1)	= 0;	
117.DOOR4_SLAVEZSU_ABORT(0/1)	= 0;	0: Time switch function for door #4 not interruptible 1: Time switch function for door #4 interruptible
118.TYPE OF CP(0~3)	= 0;	0: no CP                    3: Pin "+24V" and "DET" of the connection "CP" are short-circuited together. 1: one CP                "CP" are short-circuited together. 2: two CPs
END OF FILE-----		

## 5 Module description

The IO 420 offers 10 module types. The respective inputs/outputs are used in different ways depending on the module type.

### 5.1 Module type "watchdog"

The "watchdog" module type can be used for monitoring a door. When the monitoring function is armed, the door may only be opened by release. In all other cases, an alarm message is sent after the alarm suppression and alarm delay times have expired.

When the monitoring function is not armed, the door can be opened without release.

Connections	Assignment/function description	Menu	
Input	1	<ul style="list-style-type: none"> <li>▫ rising flank - monitoring is disarmed</li> <li>▫ falling flank - monitoring is armed</li> </ul>	Duration for short-term release
	2	Release with short-term release function; only with rising flank	
	3	Bolt feedback	
	4	Door contact	
Output	1	Monitoring state; enabled with armed monitoring	
	2	Electric strike fail safe	
	3	Alarm suppressed: 1 sec cycle Alarm delayed: on Alarm enabled: off	
	4	Alarm suppressed: off Alarm delayed: off Alarm enabled: Permanently on	

Tab. 1: Pin assignment for "watchdog" module type

#### Functional description of the inputs and outputs

current state – current state	State changes to	State changes with
Monitoring disarmed	Alarm active	Sabotage
	Monitoring armed	<ul style="list-style-type: none"> <li>▫ falling flank at input 1</li> <li>▫ CAN command "watchdog enable"</li> <li>▫ BACnet command "watchdog enable"</li> </ul>
Monitoring armed	Alarm active	Sabotage
	Monitoring disarmed	<ul style="list-style-type: none"> <li>▫ rising flank at input 1</li> <li>▫ CAN command "watchdog disable"</li> <li>▫ BACnet command "watchdog disable"</li> </ul>
	Alarm suppressed	If the door is locked but open
Alarm suppressed (output 1 enabled and output 3 flashing every few seconds)	Alarm active	Sabotage
	Monitoring disarmed	<ul style="list-style-type: none"> <li>▫ rising flank at input 1</li> <li>▫ CAN command "watchdog disable"</li> <li>▫ BACnet command "watchdog disable"</li> </ul>
	Monitoring armed	If the alarm activation has been cancelled and the alarm acknowledged.
Alarm delayed	Alarm delayed	If the alarm suppression time has expired.
	Alarm active	<ul style="list-style-type: none"> <li>▫ Sabotage</li> <li>▫ If the alarm delay time has expired.</li> </ul>
Alarm delayed (output 1 and 3 enabled.)	Monitoring armed (if the alarm activation has been cancelled and a command sent either via input 2, CAN or BACnet as acknowledgement to the IO 420.)	<ul style="list-style-type: none"> <li>▫ Short-term release through input 2</li> <li>▫ CAN command "watchdog enable", "watchdog disable" or "KZF"</li> <li>▫ BACnet command "KZF"</li> </ul>
	Monitoring armed (if the alarm activation has been cancelled and a command sent either via input 2, CAN or BACnet as acknowledgement to the IO 420.)	<ul style="list-style-type: none"> <li>▫ Short-term release through input 2</li> <li>▫ CAN command "watchdog enable", "watchdog disable" or "KZF"</li> <li>▫ BACnet command "KZF"</li> </ul>

### 5.2 Module type "1 door"

The "1 door" module type can be used for controlling one door. The connection of release switch, short-term release push button, reed contact and lock feedback is possible. The messages are forwarded via bus.

Connections	Assignment/function description	
Input	1	<ul style="list-style-type: none"> <li>▫ rising flank - unlock</li> <li>▫ falling flank - lock</li> </ul>
	2	Short-term release is triggered with rising flank
	3	Bolt feedback
	4	Door contact
Output	1	Electric strike fail safe
	2	Electric strike fail secure
	3	Can be configured <ul style="list-style-type: none"> <li>▫ inactive</li> <li>▫ Sabotage alarm</li> <li>▫ closed</li> <li>▫ Locked</li> <li>▫ closed and locked</li> </ul>
	4	Can be configured <ul style="list-style-type: none"> <li>▫ inactive</li> <li>▫ Sabotage alarm</li> <li>▫ closed</li> <li>▫ Locked</li> <li>▫ closed and locked</li> </ul>

Tab. 2-pin assignment module type "1-door"

current state – current state	State changes to	State changes with
unlocked In this state output 1 is enabled and output 2 is disabled. Output 3 and 4 are enabled or disabled depending on the configuration.	locked if time switch is not enabled.	<ul style="list-style-type: none"> <li>▫ falling flank from input 1</li> <li>▫ CAN command "lock"</li> <li>▫ BACnet command "lock"</li> <li>▫ sabotage</li> </ul>
	time switch (ZSU)	If ZSU is active and one of the above-mentioned release devices occurs.
locked In this state output 2 is enabled and output 1 is disabled. Output 3 and 4 are enabled or disabled depending on the configuration.	unlocked	<ul style="list-style-type: none"> <li>▫ rising flank from input 1</li> <li>▫ CAN command "unlock"</li> <li>▫ BACnet command "unlock"</li> </ul>
	short-term release (KZF)	<ul style="list-style-type: none"> <li>▫ rising flank from input 2</li> <li>▫ CAN command "short-term release"</li> <li>▫ BACnet command "short-term release"</li> </ul>
	time switch (ZSU)	If ZSU message is enabled and ZSU was not interrupted.
short-term release (KZF) In this state output 1 is enabled and output 2 disabled. Output 3 and 4 are enabled or disabled depending on the configuration. KZF time can be extended by input 2 if "KZF re-triggering" is enabled.	locked	If KZF time has expired If KZF interruptible is enabled and the door is closed again after opening. KZF is enabled for at least 2.5 seconds
	unlocked	<ul style="list-style-type: none"> <li>▫ rising flank from input 1</li> <li>▫ CAN command "unlock"</li> <li>▫ BACnet command "unlock"</li> </ul>
time switch (ZSU) In this state output 1 is enabled and output 2 disabled. Output 3 and 4 are enabled or disabled depending on the configuration.	locked with enabled option time switch interruption	<ul style="list-style-type: none"> <li>▫ falling flank from input 1</li> <li>▫ CAN command "lock".</li> <li>▫ BACnet command "lock"</li> </ul>
	locked without enabled option time switch interruption	<ul style="list-style-type: none"> <li>▫ sabotage</li> <li>▫ If time switch message is no longer enabled.</li> </ul>

#### Time switch interruption

If "time switch interruptible" is enabled in the IO 420 configuration, the "time switch" state can be interrupted using the "lock" command. The state then changes to "locked" and the flag "time switch aborted" is set. No further change in state can take place when the flag is set. The flag is reset again when the door is unlocked and locked. The message "time switch" has to be enabled.

### 5.3 Module type "2 doors"

The "2 doors" module type can be used for controlling two mutually independent doors. The connection of door contacts and lock feedback to the inputs is possible. The connection of a release switch is not designated for this module type.

Connections	Assignment/function description	
Input	1	Lock feedback door #1
	2	Door contact door #1
	3	Lock feedback door #2
	4	Door contact door #2
Output	1	Electric strike fail safe door #1
	2	Electric strike fail safe door #2
	3	Can be configured for door #1 <ul style="list-style-type: none"> <li>▫ Inactive</li> <li>▫ Sabotage alarm</li> <li>▫ closed</li> <li>▫ Locked</li> <li>▫ closed and locked</li> </ul>
	4	Can be configured for door #2 <ul style="list-style-type: none"> <li>▫ Inactive</li> <li>▫ Sabotage alarm</li> <li>▫ closed</li> <li>▫ Locked</li> <li>▫ closed and locked</li> </ul>

Tab. 3: Pin assignment module type "2-doors"

current state – current state	State changes to	State changes with
unlocked In this state output 1 or 2 is enabled. Output 3 and 4 are enabled or disabled depending on the configuration.	locked if time switch is not enabled.	<ul style="list-style-type: none"> <li>▫ CAN command "lock"</li> <li>▫ BACnet command "lock"</li> <li>▫ sabotage</li> </ul>
	time switch (ZSU)	If ZSU is active and one of the above-mentioned release devices occurs.
locked In this state output 1 or 2 is disabled. Output 3 and 4 are enabled or disabled depending on the configuration.	unlocked	<ul style="list-style-type: none"> <li>▫ CAN command "unlock"</li> <li>▫ BACnet command "unlock"</li> </ul>
	short-term release (KZF)	<ul style="list-style-type: none"> <li>▫ CAN command "short-term release"</li> <li>▫ BACnet command "short-term release"</li> </ul>
	time switch (ZSU)	If ZSU message is enabled and if ZSU was not interrupted.
short-term release (KZF) In this state output 1 or 2 is enabled. Output 3 and 4 are enabled or disabled depending on the configuration. KZF re-triggering is not possible in this mode.	locked	<ul style="list-style-type: none"> <li>▫ if KZF time has expired</li> <li>▫ if KZF interruptible is enabled and the door is closed again after opening. The min. KZF time is 2.5 seconds.</li> </ul>
	unlocked	<ul style="list-style-type: none"> <li>▫ CAN command "unlock"</li> <li>▫ BACnet command "unlock"</li> </ul>
time switch (ZSU) In this state output 1 or 2 is enabled. Output 3 and 4 are enabled or disabled depending on the configuration.	locked with enabled option time switch interruption	<ul style="list-style-type: none"> <li>▫ CAN command "lock".</li> <li>▫ BACnet command "lock"</li> </ul>
	locked without enabled option time switch interruption	<ul style="list-style-type: none"> <li>▫ sabotage</li> <li>▫ If time switch message is no longer enabled.</li> </ul>

### 5.4 Module type "4 doors"

The "4 doors" module type can be used for controlling four mutually independent doors. Only the connection of door contacts to the inputs is possible. The connection of a lock feedback or a release switch is not designated for this module type.

Connections	Assignment/function description
Input	1 Door contact door #1
	2 Door contact door #2
	3 Door contact door #3
	4 Door contact door #4
Output	1 Electric strike fail safe door #1
	2 Electric strike fail safe door #2
	3 Electric strike fail safe door #3
	4 Electric strike fail safe door #4

Tab. 4: Pin assignment module type "4-doors"

current state – current state	State changes to	State changes with
unlocked In this state output 1, 2, 3 or 4 is enabled.	locked if time switch is not enabled.	<ul style="list-style-type: none"> <li>▫ CAN command "lock"</li> <li>▫ BACnet command "lock"</li> <li>▫ sabotage</li> </ul>
	time switch (ZSU)	If ZSU is active and one of the above-mentioned release devices occurs.
locked In this state output 1, 2, 3 or 4 is disabled.	unlocked	<ul style="list-style-type: none"> <li>▫ CAN command "unlock"</li> <li>▫ BACnet command "unlock"</li> </ul>
	short-term release (KZF)	<ul style="list-style-type: none"> <li>▫ CAN command "short-term release"</li> <li>▫ BACnet command "short-term release"</li> </ul>
	time switch (ZSU)	If ZSU message is enabled and if ZSU was not interrupted.
short-term release (KZF) In this state output 1, 2, 3 or 4 is enabled. KZF re-triggering is not possible in this mode.	locked	if KZF time has expired if KZF interruptible is enabled and the door is closed again after opening. The min. KZF time is 2.5 seconds.
	unlocked	<ul style="list-style-type: none"> <li>▫ CAN command "unlock"</li> <li>▫ BACnet command "unlock"</li> </ul>
time switch (ZSU) In this state output 1, 2, 3 or 4 is enabled.	locked with enabled option time switch interruption	<ul style="list-style-type: none"> <li>▫ CAN command "lock".</li> <li>▫ BACnet command "lock"</li> </ul>
	locked without enabled option time switch interruption	<ul style="list-style-type: none"> <li>▫ sabotage</li> <li>▫ If time switch message is no longer enabled.</li> </ul>

### 5.5 Module type "automatic stat" / "automatic 4 sec"

With this module type, the IO 420 can control a GEZE door drive via inputs/outputs. Switches can be connected at input 1 and 2 for this. Input 3 and 4 are used to evaluate the door feedback.



With this module type, no fault messages of the drive can be evaluated via the IO 420, since the drive communicates via the inputs/outputs rather than via RS485.

Connections	Assignment/function description
Input	1 <ul style="list-style-type: none"> <li>▫ rising flank: change of state to "automatic"</li> <li>▫ falling flank: change of state to "night"</li> </ul>
	2 <ul style="list-style-type: none"> <li>▫ rising flank: change of state to "permanently open"</li> <li>▫ falling flank: no effect</li> </ul>
	3 Lock state
	4 Door contact
Output	1 Command to DCU "night"
	2 Command to DCU "shop closed"
	3 Command to DCU "automatic"
	4 Command to DCU "permanently open"

Tab. 5: Pin assignment of module type "automatic"

State	State changes to	State changes with
automatic Output 3 is enabled. If module type "automatic 4 sec" is enabled, output 3 is switched off again after 4 seconds.	night	<ul style="list-style-type: none"> <li>▫ falling flank input 1</li> <li>▫ CAN command "night"</li> <li>▫ BACnet command "night"</li> </ul>
	shop closed	<ul style="list-style-type: none"> <li>▫ CAN command "close shop"</li> <li>▫ BACnet command "close shop"</li> </ul>
	permanently open	<ul style="list-style-type: none"> <li>▫ of the rising flank input 2</li> <li>▫ CAN command "permanent open"</li> <li>▫ BACnet command "permanent open"</li> </ul>
shop closed (exit only) Output 2 is enabled. If module type "automatic 4 sec" is enabled, output 2 is switched off again after 4 seconds.	night	<ul style="list-style-type: none"> <li>▫ of the falling flank input 1</li> <li>▫ CAN command "night"</li> <li>▫ BACnet command "night"</li> </ul>
	automatic	<ul style="list-style-type: none"> <li>▫ of the rising flank input 1</li> <li>▫ CAN command "automatic"</li> <li>▫ BACnet command "automatic"</li> </ul>
	permanently open	<ul style="list-style-type: none"> <li>▫ of the rising flank input 2</li> <li>▫ CAN command "permanent open"</li> <li>▫ BACnet command "permanent open"</li> </ul>
permanently open: Output 4 is enabled. If module type "automatic 4 sec" is enabled, output 4 is switched off again after 4 seconds.	night	<ul style="list-style-type: none"> <li>▫ of the falling flank input 1</li> <li>▫ CAN command "night"</li> <li>▫ BACnet command "night"</li> </ul>
	shop closed	<ul style="list-style-type: none"> <li>▫ CAN command "close shop"</li> <li>▫ BACnet command "close shop"</li> </ul>
	automatic	<ul style="list-style-type: none"> <li>▫ of the rising flank input 1</li> <li>▫ CAN command "automatic"</li> <li>▫ BACnet command "automatic"</li> </ul>
night Output 1 is enabled. If module type "automatic 4 sec" is enabled, output 1 is switched off again after 4 seconds.	automatic	<ul style="list-style-type: none"> <li>▫ of the rising flank input 1</li> <li>▫ CAN command "automatic"</li> <li>▫ BACnet command "automatic"</li> </ul>
	shop closed	<ul style="list-style-type: none"> <li>▫ CAN command "close shop"</li> <li>▫ BACnet command "close shop"</li> </ul>
	permanently open	<ul style="list-style-type: none"> <li>▫ of the rising flank input 2</li> <li>▫ CAN command "permanent open"</li> <li>▫ BACnet command "permanent open"</li> </ul>



### 5.6 Module type "window"

With this module type, the IO 420 can control two windows via inputs/outputs. Switches can be connected at input 1 and 3 for this. Control is by means of collective commands i.e. the windows are triggered together.



With this module type, no fault messages of the drive can be evaluated, since the drive communicates via the inputs/outputs rather than via RS485.

Connections	Assignment/function description
Input	1 Collective command "open windows" with rising flank. The falling flank has no function
	2 Collective command "close windows" with rising flank. The falling flank has no function
	3 Collective command "stop windows". Whether a stop is triggered by falling or rising flank can be configured.
	4 Feedback "closed" for window 1 and 2. The contacts should be closed in series.
Output	1 Relais_open_win1. This relay is enabled if window 1 is to be opened.
	2 Relais_close_win1. This relay is enabled if window 1 is to be closed.
	3 Relais_open_win2. This relay is enabled if window 2 is to be opened.
	4 Relais_close_win2. This relay is enabled if window 2 is to be closed.

Tab. 6: Pin assignment of module type "window"

current state – current state	State changes to	State changes with
stop all outputs are disabled.	opening	<ul style="list-style-type: none"> <li>rising flank from input 1</li> <li>BACnet command "open window"</li> <li>CAN command "open window"</li> </ul>
	closing	<ul style="list-style-type: none"> <li>rising flank from input 2</li> <li>BACnet command "close window"</li> <li>CAN command "close window"</li> </ul>
closing Output 2 or 4 is enabled.	opening	<ul style="list-style-type: none"> <li>rising flank from input 1</li> <li>BACnet command "open window"</li> <li>CAN command "open window"</li> </ul>
	stop	<ul style="list-style-type: none"> <li>rising flank from input 3</li> <li>if the time of 90 sec has expired.</li> <li>BACnet command "stop"</li> <li>CAN command "stop"</li> </ul>
opening Output 1 or 3 is enabled.	closing	<ul style="list-style-type: none"> <li>rising flank from input 2</li> <li>BACnet command "close window"</li> <li>CAN command "close window"</li> </ul>
	stop	<ul style="list-style-type: none"> <li>rising flank from input 3</li> <li>if the time of 90 sec has expired.</li> <li>BACnet command "stop"</li> <li>CAN command "stop"</li> </ul>

### 5.7 Module type "universal"

With this module type, the IO 420 has universal control via inputs/outputs. Switches can be connected at input 1 and 4 for this. The inputs can be configured as ZSU masters and the ZSU master can be activation via the respective switch or internal timer. In addition, inputs 3 and 4 can be configured for RWA or BMA.

Connections	Assignment/function description
Input	1 <ul style="list-style-type: none"> <li>Switch for relay 1: Output 1 is switched on for rising flank, the output is switched off for falling flank.</li> <li>ZSU master 1: ZSU master #1 is enabled as long as the switch is switched on.</li> </ul>
	2 <ul style="list-style-type: none"> <li>Switch for relay 2</li> <li>ZSU master 2</li> </ul>
	3 <ul style="list-style-type: none"> <li>Switch for relay 3</li> <li>ZSU master 3</li> <li>BMA (closer)</li> <li>RWA (closer)</li> </ul>
	4 <ul style="list-style-type: none"> <li>Switch for relay 4</li> <li>ZSU master 4</li> <li>BMA (closer)</li> <li>RWA (closer)</li> </ul>

Output	1	Output relay 1
	2	Output relay 2
	3	Output relay 3
	4	Output relay 4

Tab. 7 Pin assignment module type "universal"

State	State changes to	State changes with
off The corresponding output is disabled.	on	<ul style="list-style-type: none"> <li>with rising flank of the corresponding input, if this is configured as a switch.</li> <li>BACnet command "on"</li> <li>CAN command "on"</li> </ul>
	time switch	If ZSU message is enabled and if ZSU was not interrupted.
on The corresponding output is enabled.	off if ZSU is not enabled.	<ul style="list-style-type: none"> <li>falling flank of the corresponding input, if this is configured as a switch.</li> <li>BACnet command "off"</li> <li>CAN command "off"</li> </ul>
	time switch	<ul style="list-style-type: none"> <li>with the above-mentioned release devices if the ZSU message is enabled.</li> </ul>
time switch The corresponding output is enabled.	off	<ul style="list-style-type: none"> <li>If the ZSU message is disabled.</li> <li>BACnet command "off" can trigger this change in state if ZSU is configured as "interruptible".</li> <li>CAN command "off" can trigger this change in state if ZSU is configured as "interruptible".</li> </ul>

### 5.8 Module type "IQ lock EI + Aut"

The module type "IQ Lock EL + Aut" is used to activate GEZE motor locks.

**IQ Aut** is connected with the IO 420 via bus (terminal "ST 220") and controlled accordingly. All the states and fault messages from the IQ Aut can be read out and forwarded via BACnet.

**IQ Lock EL** is connected with the IO 420 via inputs/outputs and controlled accordingly. For this reason, the IO 420 can neither read out fault messages of IQ Lock EL nor forward these via BACnet.



**CAUTION** In the case of fire protection door, capacitor power (CP) must be connected to terminal CP and the parameter "Conf. CP" must be set accordingly (see chapter 6.3 Service menu).

#### Release of the passive leaf

When the passive leaf is released, the active leaf is automatically released immediately.

#### Hold open

With IQ Lock EL the state "permanently open" is possible.

With IQ Aut the door remains opened for the hold-open time set in the IO 420 configuration.

The locking bolt is held by the switch lock as long as the door is open.

Connections	Assignment/function description
Input	1 GF_locked (feedback)
	2 <ul style="list-style-type: none"> <li>Release_AL (command, factory setting)</li> <li>KZF_AL_IL (command), triggered with rising flank.</li> </ul>
	3 <ul style="list-style-type: none"> <li>KZF_AL_IL (command, factory setting), triggered with rising flank.</li> <li>AL_closed (feedback)</li> <li>BMA (evaluated as electric strike)</li> <li>RWA (evaluated as electric strike)</li> </ul>
	4 <ul style="list-style-type: none"> <li>BMA (factory setting, electric strike)</li> <li>RWA (electric strike)</li> <li>IL_closed (feedback)</li> <li>KZF_AL (command), triggered with rising flank.</li> </ul>
Output	1 Release for IQ Lock EL
	2 Day/night for IQ Lock EL
	3 Feedback relay active when GF is locked
	4 Feedback relay active when GF is locked

Tab. 8: Pin assignment of module type "IQ lock"

5.8.1 Active leaf

current state – current state	State changes to	State changes with
night Outputs 1, 2 and 3 are disabled.	day	<ul style="list-style-type: none"> <li>▫ BACnet command "day"</li> <li>▫ CAN command "day"</li> </ul>
	released	<ul style="list-style-type: none"> <li>▫ rising flank of input "release"</li> <li>▫ BACnet command "release"</li> <li>▫ CAN command "release"</li> </ul>
	short-term release (KZF)	<ul style="list-style-type: none"> <li>▫ rising flank of input "KZF"</li> <li>▫ BACnet command "short-term release"</li> <li>▫ CAN command "short-term release"</li> </ul>
day Output 2 is enabled	night	<ul style="list-style-type: none"> <li>▫ falling flank from input "day/night".</li> <li>▫ BACnet command "night"</li> <li>▫ CAN command "night"</li> </ul>
	released	<ul style="list-style-type: none"> <li>▫ rising flank of input "release"</li> <li>▫ BACnet command "release"</li> <li>▫ CAN command "release"</li> </ul>
	short-term release	<ul style="list-style-type: none"> <li>▫ rising flank of input "KZF"</li> <li>▫ BACnet command "short-term release"</li> <li>▫ CAN command "short-term release"</li> </ul>
released Output 3 is enabled.	night	<ul style="list-style-type: none"> <li>▫ falling flank of input "release" (the last previous state was "night")</li> <li>▫ BACnet command "night"</li> <li>▫ CAN command "night"</li> </ul>
	day	<ul style="list-style-type: none"> <li>▫ BACnet command "day"</li> <li>▫ CAN command "day"</li> </ul>
	short-term release	▫ Not possible
short-term release Output 1 is enabled.	night	<ul style="list-style-type: none"> <li>▫ falling flank of input "release" (the last previous state was "night")</li> <li>▫ BACnet command "night"</li> <li>▫ CAN command "night"</li> </ul>
	day	<ul style="list-style-type: none"> <li>▫ BACnet command "day"</li> <li>▫ CAN command "day"</li> </ul>
	released	<ul style="list-style-type: none"> <li>▫ rising flank of input "release"</li> <li>▫ BACnet command "release"</li> <li>▫ CAN command "release"</li> </ul>
error	The error can be acknowledged with any command.	

5.8.2 Passive leaf

current state – current state	State changes to	State changes with
unlock (shown as "release" in VAT 220): Output 4 is enabled.	lock	<ul style="list-style-type: none"> <li>▫ BACnet command "lock"</li> <li>▫ CAN command "lock"</li> </ul>
lock (shown as "night" in VAT 220): Output 4 is disabled.	unlock if ZSU is not enabled.	<ul style="list-style-type: none"> <li>▫ the rising flank of input "release_IL"</li> <li>▫ BACnet command "unlock"</li> <li>▫ CAN command "unlock"</li> </ul>
into lock (shown as "day" in VAT 220): This state is an intermediate state between "unlock" and "lock".		
into unlock (shown as "day" in VAT 220): This state is an intermediate state between "lock" and "unlock".		
error (shown as "error" in VAT 220):	The error can be acknowledged with any command.	

5.9 Module type "RWS + KL"

In the module type "RWS + KL" the IO 420 works as a gateway between the CAN bus and BACnet and translates the lifetime message of the TZ 320 into the BACnet protocol. The control commands generated are turned into CAN commands by the IO 420 and forwarded to the TZ 320.

**Gateway CAN BACnet**

- TZ 320 transmits a lifetime message every second, which is transformed into the BACnet protocol and forwarded on BACnet MS/TP level.
- BACnet object multi state value 4 is defined for activating the TZ 320. This object comprises three commands: "short-term release", "unlock" and "lock".
- The bus functions of the TZ 320 e.g. "collective locking", "BMA group over BUS" etc. are currently not supported by the IO 420. The bus function "timer" is implemented and is supported.
- If a ZSU master transmits a ZSU message via BACnet, the IO 420 translates this into a CAN message.
- If the IO 420 is configured as a timer master, the IO 420 transmits the ZSU message both via CAN bus and BACnet.

**Terminal box**

The inputs and outputs of the IO 420 can be used as an IO extension for the TZ 320.

KL 220 has 4 inputs and 6 outputs. Since the IO 420 has 4 inputs and 4 outputs, the configuration for the fifth and sixth output of the KL 220 is not evaluated.

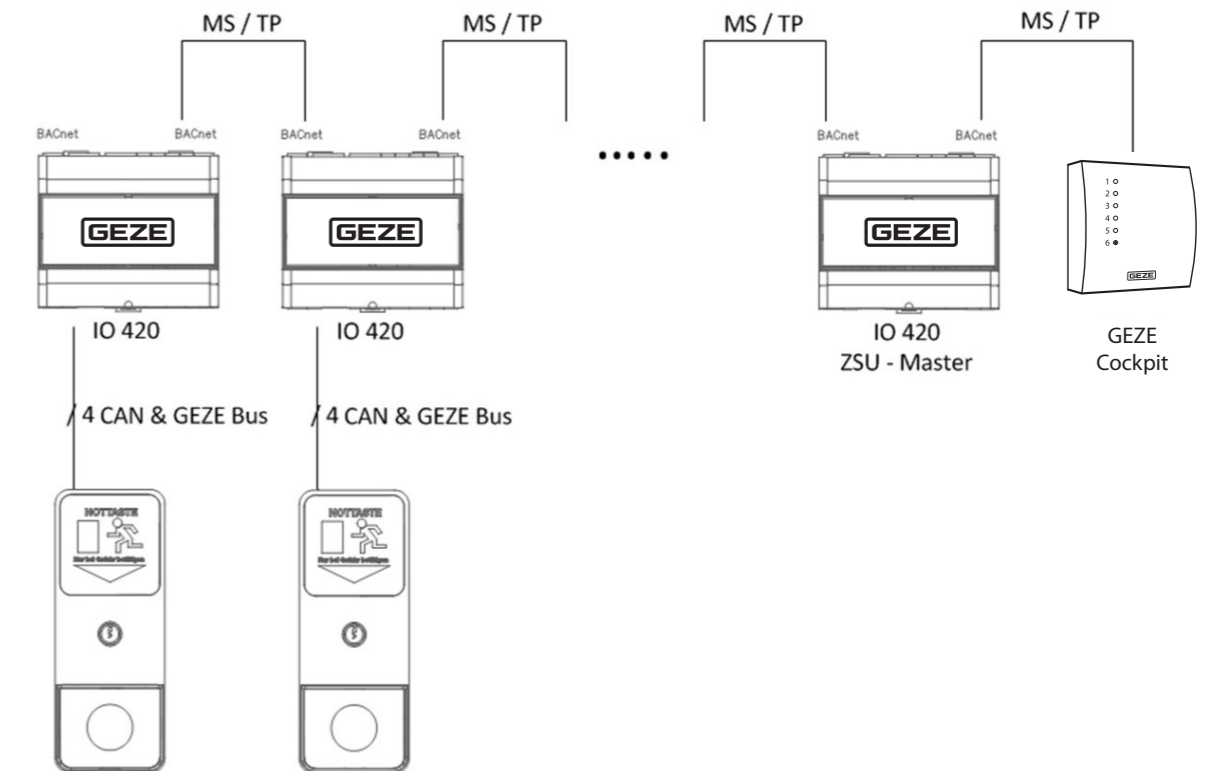


Fig. 3: Composition BACnet MS/TP and CAN for GEZE IO 420 as Gateway for TZ 320

**Setting in TZ 320 and IO 420**

- CAN: The CAN address in TZ 320 and IO 420 must be identical for both devices to be able to communicate with one another via CAN.
- CAN terminating resistor The CAN terminating resistor in TZ 320 and IO 420 must be switched on.
- The terminating resistor for the GEZE bus in IO 420 must be switched on. This setting is important for the "terminal box" function.
- Timer function:  
The TZ 320 must be configured as a "slave".  
The IO 420 per segment must be configured as "master".
- The ZSU master function is supported by the IO 420 with the following module types:
  - 1-door solution
  - 2-door solution
  - 4-door solution
  - Universal

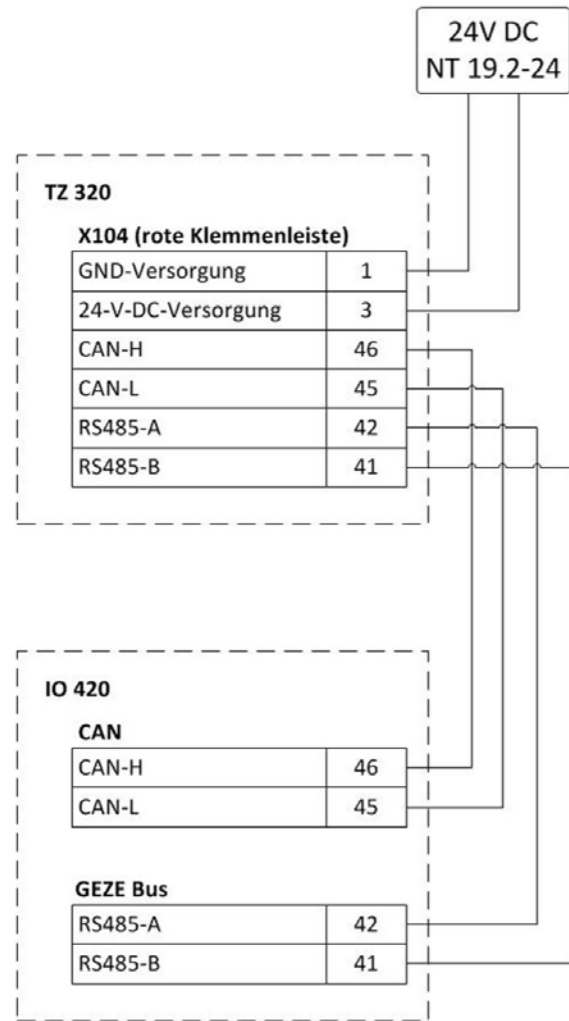


Fig. 4: Connection example for the module type "RWS + KL 220"

### 5.10 Module type "DCU1, 2 and 8"

"DCU1, 2 and 8" are type identifications of swing door and sliding door drive with DCU light (CAN interface). In this type of module, the IO 420 functions as gateway as in module type "RWS + KL". Therefore, drives require DCU light so that the lifetime report is forwarded to IO 420 via Can. Active leaves and passive leaves can also be connected.

#### Gateway CAN BACnet

- Automatic drive transmits a lifetime message every second, which is transformed into the BACnet protocol and forwarded on BACnet MS/TP level.
- BACnet object multistate value 3 represents the current operating mode.
- BACnet object multistate value 4 can change the operating mode.
- The inputs and outputs must be used freely as in module type "universal".

#### Setting in DCU

- CAN: The CAN address in DCU and IO 420 must be identical for both devices to be able to communicate with one another via CAN. E.g. DCU-GF has CAN-Address 7 and DCU-SF has 8. Then you must set CAN addresses in IO 420:  
 In "Buskonf." "konf.CAN" "1.CAN-Adresse:" the CAN address must be entered for DCU-GF.  
 In "Buskonf." "konf.CAN" "2.CAN-Adresse:" the CAN address must be entered for DCU-SF.
- CAN-terminating resistor on the first and last device must be activated.

If	Parameter	Value
DCU-GF	Bus address	1
DCU-SF	Bus address	2
IO 420	Buskonf./ 1.CAN-Adr	1
	Buskonf./ 1.CAN-Adr	2

### 5.11 Module type "DCU6" (revolving door)

In this type of module, the IO 420 functions as gateway as in module type "DCU 1, 2 and 8". Therefore, drives require DCU light so that the lifetime report is forwarded to IO 420 via Can. Active leaves and passive leaves can also be connected.

#### Gateway CAN BACnet

- Automatic drive transmits a lifetime message every second, which is transformed into the BACnet protocol and forwarded on BACnet MS/TP level.
- BACnet object multistate value 3 represents the current operating mode.
- BACnet object multistate value 4 can change the operating mode.
- The inputs and outputs must be used freely as in module type "universal".

#### Setting in DCU

- CAN: The CAN address in DCU and IO 420 must be identical for both devices to be able to communicate with one another via CAN. In "Buskonf." "konf.CAN" "1.CAN-Adresse:" the CAN address of the revolving door drive must be entered.
- CAN-terminating resistor of both devices must be activated.

### 5.12 Module type "DCU128+RWS+KL"

- This type of module is a summary of "RSW+KL" and "DCU 1, 2 and 8". TZ 320, DCU-GF and DCU-SF are connected by CAN. Terminals 45 and 46 of TZ 320 are connected to the GEZE BUS of IO 420. Thus, the inputs and outputs of IO 420 are used as terminal box for RWS.

#### Setting in DCU

- CAN address of DCU-GF and TZ320 must have the same CAN address. Precisely this address is entered in IO 420 under "Buskonf." "Konf. CAN" "CAN-Adr[DCU GF,TZ]".
- The CAN address of DCU-SF is entered in IO 420 under "Buskonf." "Konf. CAN" "CAN-Adr[DCU SF]".

If	Parameter	Value	Parameter
DCU-GF	Bus address	1	Bus address
DCU-SF	Bus address	2	Bus address
TZ 320	Bus address	1	Bus address
IO 420	Buskonf./ 1.CAN-Adr	1	
	Buskonf./ 2.CAN-Adr	2	

### 5.13 Module type "MBZ"

- An emergency power control unit MBZ 300 is connected via CAN.

**The following BACnet object types are used for the GEZE IO 420 MBZ:**

- Device object (one object)
- Multistate value (up to 66 objects)
- Notification class object (one object)

The parameter setting for the IO 420 should always be done with the aid of the GEZE service terminal ST 220. Once set, the configuration file "IO4220MBZ.CON" can be copied to a microSD card.

This module type is only available for the variant of GEZE IO 420 with the product ID 187103. With this variant all other module types are inactive and cannot be used.

**!** The MBZ module configuration is not copied to the microSD card.

**Be sure to adhere to the following when planning and commissioning:**

- Based on the EN 12101-10 test of the MBZ 300, a common power supply for the IO 420 and MBZ is not permitted. Consequently, a separate power supply must be used for the GEZE IO 420 MBZ.
- Installing the GEZE IO 420 MBZ in the MBZ control cabinet invalidates the VdS certification of the MBZ.
- MBZ 300 and GEZE IO 420 MBZ components are delivered separately ex works.

**Controlling the drives via BACnet**

Commands for opening, closing or stopping the window drives can be given using the point command\_slot\_x\_DM.

Command	Value
Ready	1
Open	2
Close	3
Stop	4

**Information about the state of a drive line**


The points state\_slot\_x\_DM and alarm\_slot\_x\_DM provide information about the state of the drive modules.

Value	State
2	Opening or opened
3	Closing or completely closed
1	Stopped
4	Alarm (RWA tripped)

Value X (alarm)	State
1	OK
33	Configuration fault
34	CAN BUS faulty
All other values	<i>(Value minus 1 summarises various messages in binary code)</i>
Bit 0 (X-1)	BUS fault
Bit 1 (X-1)	Network fault
Bit 2 (X-1)	Line fault
Bit 3 (X-1)	Rechargeable battery fault
Bit 4 (X-1)	Alarm

**Information about the state of a fire section**

The points state\_slot\_x\_CM/SM and alarm\_slot\_x\_CM/SM provide information about the state of the control or sensor module.

Value X (state CM / SM)	State
1, 9, 33, 41, 65, 73, 97, 105	OK
All other values	Alarm 
Bit 0 (X-1)	Alarm button pressed
Bit 1 (X-1)	Smoke detector 1
Bit 2 (X-1)	Smoke detector 2
Bit 4 (X-1)	Signal relay active

**Information about the state of the power module**

The points state\_slot\_x\_PM and alarm\_slot\_x\_PM provide information about the state of the drive modules.

Value X (state PM)	State
1	OK
All other values	<i>(Value minus 1 summarises various messages in binary code)</i>
Bit 0 (X-1)	PM voltage, rechargeable battery, safety fuse F1 OK
Bit 1 (X-1)	PME1 voltage, rechargeable battery, safety fuse F1 OK
Bit 2 (X-1)	PME2 voltage, rechargeable battery, safety use F1 OK
Bit 3 (X-1)	Charge 0
Bit 4 (X-1)	Alarm
Bit 5 (X-1)	Charge 2
>= 65	Rechargeable battery operation

Value X (alarm PM)	State
1	OK
33	Configuration fault
34	CAN BUS faulty
All other values	<i>(Value minus 1 summarises various messages in binary code)</i>
Bit 0 (X-1)	Rechargeable battery fault
Bit 1 (X-1)	Safety fuse F2 defective
Bit 2 (X-1)	Temperature sensor defective
Bit 3 (X-1)	System voltage defective

**!**

**Setting in MBZ**

- A CAN address must be set at MBZ 300. This address minus 1 is entered in IO 420 under "Buskonf." "Konf. CAN" "CAN-Adr". (MBZ 300 = n, IO 420 MBZ = (n-1) )

If	Parameter	Value
MBZ 300	Bus address	1 .. 64
IO 420 MBZ	Bus address	0 .. 63 (MBZ-1)

- Do not use any vent groups and runtime mode in MBZ 300!
- If IO 420 MBZ firmware has been reloaded to a IO 420, the IO 420 must then be reset to factory settings (see chapter 7).
- The current MBZ module configuration must be configured under "Modulkonf."

If the CAN address is changed, the current MBZ module configuration is lost.



## 6 Annex

### 6.1 EDE lists

#### 6.1.1 1 door-solution

Keyname / Objectname	Mandatory			Optional							
	device obj.-Inst.	object-type	object-inst.	present-value-default	min-present-value	max-present-value	commandable	supports COV	state-text-reference	notif. class	
lock_state	1	3	1				N	Y	3		
close_state	1	3	2				N	Y	4		
Device_IO420	1	8	1				N	N			
notification_class_obj	1	15	50				N	N			
module_type	1	19	1		1	11	N	Y	1		
alarm_type	1	19	2		1	15	N	Y	2	50	
door_state	1	19	3		1	4	N	Y	5		
door_command	1	19	4	1	1	3	Y	Y	6		

#### 6.1.2 2 door-solution

Keyname / Objectname	Mandatory			Optional							
	device obj.-Inst.	object-type	object-inst.	present-value-default	min-present-value	max-present-value	commandable	supports COV	state-text-reference	notif. class	
door1_lock_state	1	3	1				N	Y	3		
door1_close_state	1	3	2				N	Y	4		
door2_lock_state	1	3	3				N	N	3		
door2_close_state	1	3	4				N	N	4		
Device_IO420	1	8	1				N	Y			
notification_class_obj	1	15	50				N	Y			
module_type	1	19	1		1	11	N	Y	1		
alarm_type	1	19	2		1	15	N	Y	2	50	
door1_state	1	19	3		1	4	N	Y	5		
door1_command	1	19	4	1	1	3	Y	Y	6		
door2_state	1	19	5		1	4	N	Y	5		
door2_command	1	19	6	1	1	3	Y	Y	6		

#### 6.1.3 4 door-solution

Keyname / Objectname	Mandatory			Optional							
	device obj.-Inst.	object-type	object-inst.	present-value-default	min-present-value	max-present-value	commandable	supports COV	state-text-reference	notif. class	
door1_close_state	1	3	1				N	Y	4		
door2_close_state	1	3	2				N	Y	4		
door3_close_state	1	3	3				N	N	4		
door4_close_state	1	3	4				N	N	4		
Device_IO420	1	8	1				N	Y			
notification_class_obj	1	15	50				N	Y			
module_type	1	19	1				N	Y	1		
alarm_type	1	19	2		1	15	N	Y	2	50	
door1_state	1	19	3		1	4	N	Y	5		
door1_command	1	19	4	1	1	3	Y	Y	6		
door2_state	1	19	5		1	4	N	Y	5		
door2_command	1	19	6	1	1	3	Y	Y	6		
door3_state	1	19	7		1	4	N	Y	5		
door3_command	1	19	8	1	1	3	Y	Y	6		
door4_state	1	19	9		1	4	N	Y	5		
door4_command	1	19	10	1	1	3	Y	Y	6		

#### 6.1.4 module type automatic

Keyname / Objectname	Mandatory			Optional							
	device obj.-Inst.	object-type	object-inst.	present-value-default	min-present-value	max-present-value	commandable	supports COV	state-text-reference	notif. class	
lock_state	1	3	1				N	Y	3		
close_state	1	3	2				N	Y	4		
Device_IO420	1	8	1				N	N			
notification_class_obj	1	15	50				N	N			
module_type	1	19	1		1	11	N	Y	1		
alarm_type	1	19	2		1	15	N	Y	2	50	
DCU_state	1	19	3		1	5	N	Y	51		
DCU_command	1	19	4	1	1	4	Y	Y	61		

#### 6.1.5 module type IQ lock EI + Aut

Keyname / Objectname	Mandatory			Optional							
	device obj.-Inst.	object-type	object-inst.	present-value-default	min-present-value	max-present-value	commandable	supports COV	state-text-reference	notif. class	
unlock_state_AL	1	3	1				N	Y	32		
close_state_AL	1	3	2				N	Y	4		
unlock_state_IL	1	3	3				N	N	32		
close_state_IL	1	3	4				N	N	4		
Device_IO420	1	8	1				N	Y			
notification_class_obj	1	15	50				N	Y			
module_type	1	19	1		1	11	N	Y	1		
alarm_type	1	19	2		1	15	N	Y	2	50	
ActiveLeaf_state	1	19	3		1	5	N	Y	52		
ActiveLeaf_command	1	19	4	1	1	4	Y	Y	62		
InactiveLeaf_state	1	19	5		1	5	N	Y	72		
InactiveLeaf_command	1	19	6	1	1	2	Y	Y	82		

#### 6.1.6 module type RWS

Keyname / Objectname	Mandatory			Optional							
	device obj.-Inst.	object-type	object-inst.	present-value-default	min-present-value	max-present-value	commandable	supports COV	state-text-reference	notif. class	
lock_state	1	3	1				N	Y	3		
close_state	1	3	2				N	Y	4		
Device_IO420	1	8	1				N	N			
notification_class_obj	1	15	50				N	N			
module_type	1	19	1		1	11	N	Y	1		
alarm_type	1	19	2		1	15	N	Y	23	50	
TZ320_state	1	19	3		1	11	N	Y	53		
TZ320_command	1	19	4	1	1	4	Y	Y	63		

6.1.7 module type universal

Keyname / Objectname	Mandatory			Optional							
	device obj.-Inst.	object-type	object-inst.	present-value-default	min-present-value	max-present-value	command-able	supports COV	state-text-reference	notif. class	
input1_state	1	3	1				N	Y	34		
input2_state	1	3	2				N	Y	34		
input3_state	1	3	3				N	N	34		
input4_state	1	3	4				N	N	34		
Device_IO420	1	8	1				N	Y			
notification_class_obj	1	15	50				N	Y			
module_type	1	19	1	1		11	N	Y	1		
alarm_type	1	19	2	1	15		N	Y	2	50	
output1_state	1	19	3	1	3		N	Y	44		
output1_command	1	19	4	1	1	2	Y	Y	54		
output2_state	1	19	5	1	3		N	Y	44		
output2_command	1	19	6	1	1	2	Y	Y	54		
output3_state	1	19	7	1	3		N	Y	44		
output3_command	1	19	8	1	1	2	Y	Y	54		
output4_state	1	19	9	1	3		N	Y	44		
output4_command	1	19	10	1	1	2	Y	Y	54		

6.1.8 module type watchdog

Keyname / Objectname	Mandatory			Optional							
	device obj.-Inst.	object-type	object-inst.	present-value-default	min-present-value	max-present-value	command-able	supports COV	state-text-reference	notif. class	
lock_state	1	3	1				N	Y	3		
close_state	1	3	2				N	Y	4		
Device_IO420	1	8	1				N	N			
notification_class_obj	1	15	50				N	N			
module_type	1	19	1	1		11	N	Y	1		
alarm_type	1	19	2	1	15		N	Y	2	50	
watchdog_state	1	19	3	1	6		N	Y	56		
watchdog_command	1	19	4	1	1	3	Y	Y	66		

6.1.9 module type window

Keyname / Objectname	Mandatory			Optional							
	device obj.-Inst.	object-type	object-inst.	present-value-default	min-present-value	max-present-value	command-able	supports COV	state-text-reference	notif. class	
window1_close_state	1	3	1				N	Y	4		
window2_close_state	1	3	2				N	Y	4		
Device_IO420	1	8	1				N	N			
notification_class_obj	1	15	50				N	N			
module_type	1	19	1	1		11	N	Y	1		
alarm_type	1	19	2	1	15		N	Y	2	50	
window1_state	1	19	3	1	4		N	Y	45		
window1_command	1	19	4	1	1	3	Y	Y	55		
window2_state	1	19	5	1	4		N	Y	45		
window2_command	1	19	6	1	1	3	Y	Y	55		

6.1.10 Module type „DCU 1,2 and 8“

object-name	mandatory		optional							
	object-type	object-instance	present-value-default	min-present-value	max-present-value	command-able	supports COV	state-text-reference	notif-class	
Input1	3	1				N	N	83		
Input2	3	2				N	N	83		
Input3	3	3				N	N	83		
Input4	3	4				N	N	83		
Device_IO420	8	1				N	N			
notification_class_obj	15	50				N	N			
module_type	19	1	1	13		N	N	1		
alarm_type	19	2	1	15		N	N	101	50	
operating_mode	19	3	1	14		N	N	84		
mode_command	19	4	1	7		Y	N	85		
lock_state	19	5	1	5		N	N	86		
door_command	19	6	1	4		Y	N	87		
door_state	19	7	1	5		N	N	88		
reduced_width	19	8	1	2		Y	N	89		
master_key	19	9	1	4		N	N	90		
output1_command	19	10	1	1	3	Y	N	91		
alarm_dcu_1	19	11	1	31		N	N	92	50	
alarm_dcu_2	19	12	1	31		N	N	93	50	
alarm_dcu_3	19	13	1	31		N	N	94	50	
output2_command	19	14	1	1	3			91		
output3_command	19	15	1	1	3			91		
output4_command	19	16	1	1	3			91		

6.1.11 Module type „DCU 6“

object-name	mandatory			optional					
	object-type	object-instance	present-value-default	min-present-value	max-present-value	command-able	supports COV	state-text-reference	notif-class
Input1	3	1				N	N	83	
Input2	3	2				N	N	83	
Input3	3	3				N	N	83	
Input4	3	4				N	N	83	
Device_IO420	8	1				N	N		
notification_class_obj	15	50				N	N		
module_type	19	1		1	13	N	N	1	
alarm_type	19	2		1	15	N	N	101	50
operating_mode	19	3		1	14	N	N	84	
mode_command	19	4	1	1	7	Y	N	85	
lock_state	19	5		1	5	N	N	86	
door_command	19	6	1	1	4	Y	N	87	
door_state	19	7		1	5	N	N	88	
reduced_width	19	8		1	2	Y	N	89	
master_key	19	9		1	4	N	N	90	
output1_command	19	10	1	1	3	Y	N	91	
alarm_dcu_1	19	11		1	31	N	N	98	50
alarm_dcu_2	19	12		1	31	N	N	99	50
alarm_dcu_3	19	13		1	31	N	N	100	50
output2_command	19	14	1	1	3			91	
output3_command	19	15	1	1	3			91	
output4_command	19	16	1	1	3			91	

6.1.12 Module type “DCU 128+RWS+KL”

object-name	mandatory			optional					
	object-type	object-instance	present-value-default	min-present-value	max-present-value	command-able	supports COV	state-text-reference	notif-class
lock_state_TZ	3	1				N	N	3	
door_state_TZ	3	2				N	N	4	
door_state_DCU_GF	3	3				N	N	4	
door_state_DCU_SF	3	4				N	N	4	
Device_IO420	8	1				N	N		
notification_class_obj	15	50				N	N		
module_type	19	1		1	13	N	N	1	
Alarm_TZ	19	2		1	15	N	N	6	50
operating_mode_DCU	19	3		1	14	N	N	84	
mode_command	19	4	1	1	7	Y	N	95	
lock_state_DCU	19	5		1	5	N	N	86	
door_command	19	6	1	1	4	Y	N	87	
mode_TZ	19	7		1	5	N	N	53	
reduced_width	19	8		1	2	Y	N	89	
maintennance	19	9		1	4	N	N	96	
emergency open	19	10	1	1	2	Y	N	97	
dcu_alarm1	19	11		1	31	N	N	92	50
dcu_alarm2	19	12		1	31	N	N	93	50
dcu_alarm3	19	13		1	31	N	N	94	50

6.1.13 Module type „MBZ“ (firmware IO 420 MBZ)

object-name	mandatory			optional					
	object-type	object-instance	present-value-default	min-present-value	max-present-value	command-able	supports COV	state-text-reference	notif-class
Device_IO420	8					N	N		
notification_class_obj_	15	50				N	N		
module_type	19	1	15	15	15	N	N		
alarm_slot_1_PM	19	2	1	1	34	N	Y		50
state_slot_1_PM	19	3	1	1	128	N	Y		
alarm_slot_2_CM/SM	19	5	1	1	34	N	Y		50
state_slot_2_CM/SM	19	6	1	1	128	N	Y		
command_slot_3_DM	19	7	1	1	4	Y	N		
alarm_slot_3_DM	19	8	1	1	34	N	Y		50
state_slot_3_DM	19	9	1	1	4	N	Y		
3 objects at one time describe a drive module									
command_slot_X_DM	19	m	1	1	4	N	N		
alarm_slot_X_DM	19	m+1	1	1	34	N	N		50
state_slot_X_DM	19	m+2	1	1	4	N	N		
alarm_slot_Y_WM	19	n	1	1	34	N	Y		50
state_slot_Y_WM	19	n+1	1	1	4	N	Y		

There are different BACnet objects present depending on the number of modules in MBZ 300.

6.2 State Text

Ref. no	Text 1 or Inactive-Text	Text 2 or Active-Text	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8	Text 9	Text 10	Text 11	Text 12	Text 13	Text 14	Text 15
1	watchdog	1_door	2_doors	4_doors	iq_lock_el	iq_lock_bus	automatic_stat	burglary group conflict	windows	universal	rws_kl400	DCU_128	DCU_6_revolver_door	DCU_128_RWS_KL	
2	no alarm	fire alarm	smoke heat alarm	burglary alarm	sabotage alarm	time switch group conflict	burglary group conflict	fire alarm	can/power supply disturbed	BACnet disturbed	IQ Aut active leaf error	IQ Aut inactive leaf error	IQ lock El error	IQ lock 72 error	Watchdog
3	unlocked	locked													
4	open	closed													
5	unlock	lock	short time released	time switch active											
6	unlock	lock	short time release												
23	no alarm	emergency open-TZ	hazard alarm-TZ	door alarm-TZ	sabotage-TZ	emergency open-TT	sabotage-TT	sabotage-KL	emergency open-BUS	can disturbed	relay fault-TZ	exit opener fault-TZ	Comm. KL disturbed	Comm. TT disturbed	RTC disturbed-TZ
32	locked	unlocked													
34	inactive	active													
44	off	on	time switch active												
45	stopped	opening	closing	window error											
51	automatic	night	shop closed	permanently opened	DCU error										
52	night	day	released	short time released	IQ lock error										
53	unlock	time switch active	pre-lock	lock	burglar-lock	short time released	service mode	alarm active	active sluice	passive sluice	sluice busy				
54	off	on													
55	stop	open	close												
56	watchdog enabled	watchdog disabled	short time released	alarm suppressed	alarm delayed	alarm active									
61	automatic	night	shop close	permanently open											
62	night	day	release	short time release											
63	no command	unlock	lock	short time release											
66	enable watchdog	disable watchdog	short time released												
72	unlock	lock	into unlock	into lock	IQ lock error										
82	unlock	lock													



# Reference Number	Text 1 or Inactive-Text	Text 2 or Active-Text	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8	Text 9	Text 10	Text 11	Text 12	Text 13	Text 14	Text 15
83	inactive	active													
84	automatic	night	shop closed	permanently open	time switch active	fire alarm active	DCU not initialized	DCU disturbed	heat and smoke alarm	active sluice	passive sluice	sluice busy	power-off	DCU not present	
85	no command	night	shop close	automatic	permanently open	RWS	operating mode off								
86	unlocked	GF locked	SF locked	GF and SF locked	unknown										
87	no command	contact inside	contact outside	contact authorized											
88	not closed	GF closed	SF closed	GF and SF closed	unknown										
89	summer mode	winter mode													
90	no master key active	GF-master key active	SF-master key active	GF- and SF-master key active											
91	turn(ed) off	turn(ed) on	short time release(d)												
95	no command	night/locked	shop close/unlocked	automatic/unlocked	permanently open/unlocked	RWS/locked	turn off/unlocked								
96	no maintenance required	maintenance due GF	maintenance due SF	maintenance due GF and SF											
97	emergency open	emergency inactive	emergency open active												
101	no alarm	fire alarm	smoke heat alarm	burglary alarm	sabotage alarm	time switch group conflict	burglary group conflict	fire alarm group conflict	can/power supply disturbed	BACnet disturbed	maintenance due GF	maintenance due SF	maintenance due GF and SF	DCU Type/GF-SF inconsistent	RTC disturbed-TZ





# Reference Number	Text 1 or Inactive-Text	Text 2 or Active-Text	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8	Text 9	Text 10	Text 11	Text 12	Text 13	Text 14	Text 15
92	01_24V failure	02_12V failure	03_230V failure	unknown error	unknown error	unknown error	07_Fire alarm	08_Smoke alarm	unknown error	10_Encoder err.-GF	11_Motor short-GF	12_Motor fault-GF	13_SIS-GF defective	14_MPS disconnected	15_DPS disconnected
93	32_Sabotage system err.	33_Interlocking door system err.	34_TPS comm. err.	35_Pharmacy/Permanent act.PE1 fault/	36_Internal redundancy fault/	37_Permanent actuation K11	38_Permanent actuation K12/PE3	39_Permanent actuation KA	40_Permanent actuation KB	41_Testing SIO-GF	42_Emergency lock active	unknown error	44_Stop is active	45_Drive is too hot-GF	46_Temp-sens (motor) fault.-GF
94	63_wrong software ver.	64_Opening timeout	65_Comm.Err locking-SF GF-SF	66.Err. locking-SF	67.Err. unlocking-SF	unknown error	unknown error	70_Err.in control unit-SF	71_Motor short-SF	72_Motor fault-SF	73_Permanent actuation-SF	74_Encoder err.-SF	75_Drive too hot(98 deg.)-SF	76_T-Sens(motor) fault-SF	77_T-Sens(control) fault-SF
98	1_Door radius leaves	2_Number of leaves	unknown error	4_Position is unknown error	unknown error	unknown error	unknown error	8_Maintenance time	9_Maintenance revolutions	10_Maintenance brake	11_Too much friction	unknown error	unknown error	unknown error	15_locked
99	32_Motor thermal sensor	33_Motor hot	34_Motor does not cool down	35_Control hot	36_Control does not cool down	37_Freq.converter hot	38_Freq.converter overloaded	39_Freq.converter	40_CRC PC 1	41_CRC PC 2	unknown error	unknown error	44_EE-PROM 5	45_KOM PC 1-2	46_KOM TPS
100	unknown error	unknown error	unknown error	66_Rotary encoder short-circuit	67_Rotary encoder uR1	68_Rotary encoder uR2	69_Rotary encoder INIT	70_Target speed not reached.	71_Excess voltage switch-off	unknown error	unknown error	74_Disc brake does not hold	75_Disc brake switch-off	unknown error	77_Motor brake

# Reference Number	Text16	Text17	Text18	Text19	Text20	Text21	Text22	Text23	Text24	Text25	Text26	Text27	Text28	Text29	Text30	Text31
92	16_Err.locking-GF	17_Err. unlocking-GF	18_Bolt signal not correct	19_SIS-SF defective	20_Door(GF) missing	21_Door(SF) missing	22_Mechanical fault GF	23_Mechanical fault SF	unknown error	25_Obstacle while opening	26_Zero position err.	27_SIO1/SIO2 active	28_Motor relay-GF	29_SIO-SF defective	unknown error	no error
93	47_Temp-sens (control) fault.-GF	48_Excess temperature-GF(180deg)	no alarm	50_Fault/DCU1-T30 expansion	51_Brake/24V-SF failure	52_CAN err.	53_Manual unlocked/230V failure	54_DPS comm.err.	unknown error	unknown error	57_Smoke alarm-SF	unknown error	unknown error	60_Err.in control unit-GF	61_Battery flat.	no error
94	78_Excess temperature-SF	79_Motor relay-SF	unknown error	unknown error	unknown error	unknown error	unknown error	unknown error	unknown error	unknown error	unknown error	unknown error	90_control unit defective.	91_no impluse from encoder	unknown error	no error
98	16_Bolt 1	17_Bolt 2	18_Bolt1 contact	19_Bolt2 contact	20_Post safety	21_Draw-in safety	22_Break Out	23_Emergency stop	24_Night-time close	25_Post safety active	26_Draw-in safety active	27_Break Out active	28_Emergency stop time closer active	29_Night-time closer active	unknown error	no error
99	unknown error	48_KOM FREQ	49_Activation 1	50_Activation 2	51_Software uR2	52_Kat3 redundancy	unknown error	unknown error	unknown error	56_Permanent actuation ANS 1	57_Permanent actuation ANS 2	58_Permanent actuation ANS 3	59_Permanent actuation ANS 4	60_Permanent actuation VPS 1	61_Permanent actuation VPS 2	no error
100	unknown error	unknown error	80_Mains power failure	81_24V internal	82_24V external	83_Recharge-able battery	84_KOM DCU1	unknown error	unknown error	87_Sabotage	unknown error	unknown error	unknown error	91_Production test SK	unknown error	no error

### 6.3 Service menu

Level 0	Level 1		Level 2	Level 3	Value range	Factory setting	
Select a module	Module type				watchdog 1-door solution 2-door solution 4-door solution IQ lock EL + AUT Automatic stat Universal RWS + KL400 DCU 1,2 and 8 DCU 6 DCU 128+RWS+KL	1-door solution	
Module configuration	1-door solution (factory setting)	Conf. output 3			disable Alarm Door1 locked Door1 closed Door1 closed & locked	disable	
		Conf. output 4			disable Alarm Door1 locked Door1 closed Door1 closed & locked	disable	
		Conf. door 1	Conf. KZF 1	KZF 1duration KZF 1abort KZF 1re-trigger	3~90 Yes/no Yes/no	10 No No	
			Conf. ZSU slave 1	ZSU slave size 1 ZSU slave size 2 ZSU slave size 3 ZSU slave size 4 ZSU slave size 5	Yes/no Yes/no Yes/no Yes/no	No No No No	
			Conf. ZSU interruption		Yes/no	No	
		2-door solution	Conf. output 3				disable Alarm Door1 locked Door1 closed Door1 closed & locked
	Conf. output 4					disable Alarm Door1 locked Door1 closed Door1 closed & locked	disable
	Conf. door 1		Conf. KZF 1	KZF 1duration KZF 1abort	3~90 Yes/no	10 No	
	Conf. door 2		Conf. ZSU slave 1	ZSU slave size 1 ZSU slave size 2 ZSU slave size 3 ZSU slave size 4 ZSU slave size 5	Yes/no Yes/no Yes/no Yes/no	No No No No	
			Conf. ZSU interruption		Yes/no	no	
	Conf. ZSU slave 2		ZSU slave size 1 ZSU slave size 2 ZSU slave size 3 ZSU slave size 4 ZSU slave size 5	Yes/no Yes/no Yes/no Yes/no	No No No No		

4-door solution	Conf. door 1	Conf. KZF 1	KZF 1duration KZF 1abort	3~90 Yes/no	10 No
		Conf. ZSU slave 1	ZSU slave size 1	Yes/no	No
			ZSU slave size 2	Yes/no	No
	ZSU slave size 3		Yes/no	No	
	ZSU slave size 4		Yes/no	No	
	Conf. door 2	Conf. ZSU slave 1	ZSU slave size 1 ZSU slave size 2 ZSU slave size 3 ZSU slave size 4 ZSU slave size 5	Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No
		Conf. KZF 2	KZF 2duration KZF 2abort	3~90 Yes/no	10 No
		Conf. ZSU slave 2	ZSU slave size 1 ZSU slave size 2 ZSU slave size 3 ZSU slave size 4 ZSU slave size 5	Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No
	Conf. door 3	Conf. ZSU interruption		Yes/no	No
		Conf. KZF 3	KZF 3duration KZF 3abort	3~90 Yes/no	10 No
		Conf. ZSU slave 3	ZSU slave size 1 ZSU slave size 2 ZSU slave size 3 ZSU slave size 4 ZSU slave size 5	Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No
	Conf. door 4	Conf. ZSU interruption		Yes/no	No
		Conf. KZF 4	KZF 4duration KZF 4abort	3~90 Yes/no	10 No
		Conf. ZSU slave 4	ZSU slave size 1 ZSU slave size 2 ZSU slave size 3 ZSU slave size 4 ZSU slave size 5	Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No
	IQ lock EL + Aut	Conf. ZSU interruption		Yes/no	No
			Conf. inputs	Input 1	AL unlocked
Input 2			Release AL	Release AL	
			KZF AL and IL	KZF AL and IL	
Input 3		KZF AL and IL AL closed BMA Smoke and heat extraction system	KZF AL and IL		
		BMA Smoke and heat extraction system IL closed KZF-AL (command)	BMA		
Conf. passive leaf			IQ AUT No motor lock	IQ AUT	
Conf. KZF 2	KZF1 duration KZF1 abort	3~90 Yes/no	10 No		
Conf. CP		No CP One CP Two CPs DET short-circuited	No CP		
Automatic stat					
Automatic 4 sec					
Window					

Universal	Conf. relay 1	Conf. ZSU slave 1	ZSU slave size 1 ZSU slave size 2 ZSU slave size 3 ZSU slave size 4 ZSU slave size 5	Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No	
		Conf. ZSU inter- ruption		Yes/no	No	
	Conf. relay 2	Conf. ZSU slave 2	ZSU slave size 1 ZSU slave size 2 ZSU slave size 3 ZSU slave size 4 ZSU slave size 5	Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No	
		Conf. ZSU inter- ruption		Yes/no	No	
	Conf. relay 3	Conf. ZSU slave 3	ZSU slave size 1 ZSU slave size 2 ZSU slave size 3 ZSU slave size 4 ZSU slave size 5	Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No	
		Conf. ZSU inter- ruption		Yes/no	No	
	Conf. relay 4	Conf. ZSU slave 4	ZSU slave size 1 ZSU slave size 2 ZSU slave size 3 ZSU slave size 4 ZSU slave size 5	Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No	
		Conf. ZSU inter- ruption		Yes/no	No	
	Conf, inputs	Input 1	Switch/ZSU master	switch		
		Input 2	Switch/ZSU master	switch		
		Input 3	Switch/BMA/RWA/ ZSU master	switch		
		Input 4	Switch/BMA/RWA/ ZSU master	switch		
	RWS + KL400					
	BusConf.	Conf.BACnet	MAC-Addr.		0~100	1
			Device-ID		0~4194303	1
			Reboot BACnet		enter	
Baud rate				not enabled/ 9.6 KB/ 19.2 KB/ 38.4 KB/ 57.6 KB/ 76.8 KB/ 115.2 KB	76.8 KB	
Notification class				1 ~ 90	50	
Konf.CAN		auto. addr. assignm.		enter		
		1st CAN-address:		1~63	1	
		2nd CAN-address:		1~63	0	
		3rd CAN-address: (with 4-door sol.)		1~63	0	
Conf.ZSU master		ZSU master size 1	4th CAN-address: (with 4-door sol.)		1~63	0
			Enable ZSU1		Yes/no	No
		ZSU1 start time	ZSU1 start hour ZSU1 start minute	0~23 0~59	0 0	
		ZSU1 end time	ZSU1 end hour ZSU1 end minute	0~23 0~59	0 0	
		ZSU1 weekday	ZSU1 Sunday ZSU1 Monday ZSU1 Tuesday ZSU1 Wednesday ZSU1 Thursday ZSU1 Friday ZSU1 Saturday	Yes/no Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No No	

	ZSU master size 2	Enable ZSU2		Yes/no	No	
		ZSU2 start time	ZSU2 start hour ZSU2 start minute	0~23 0~59	0 0	
		ZSU2 end time	ZSU2 end hour ZSU2 end minute	0~23 0~59	0 0	
		ZSU2 Weekdays	ZSU2 Sunday ZSU2 Monday ZSU2 Tuesday ZSU2 Wednesday ZSU2 Thursday ZSU2 Friday ZSU2 Saturday	Yes/no Yes/no Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No No No	
		ZSU master size 3	Enable ZSU3		Yes/no	No
			ZSU3 start time	ZSU3 start hour ZSU3 start minute	0~23 0~59	0 0
			ZSU3 end time	ZSU3 end hour ZSU3 end minute	0~23 0~59	0 0
			ZSU3 Weekdays	ZSU3 Sunday ZSU3 Monday ZSU3 Tuesday ZSU3 Wednesday ZSU3 Thursday ZSU3 Friday ZSU3 Saturday	Yes/no Yes/no Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No No No
		ZSU master size 4	Enable ZSU4		Yes/no	No
			ZSU4 start time	ZSU4 start hour ZSU4 start minute	0~23 0~59	0 0
			ZSU4 end time	ZSU4 end hour ZSU4 end minute	0~23 0~59	0 0
			ZSU4 Weekdays	ZSU4 Sunday ZSU4 Monday ZSU4 Tuesday ZSU4 Wednesday ZSU4 Thursday ZSU4 Friday ZSU4 Saturday	Yes/no Yes/no Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No No No
	ZSU master size 5	Enable ZSU5		Yes/no	No	
		ZSU5 start time	ZSU5 start hour ZSU5 start minute	0~23 0~59	0 0	
		ZSU5 end time	ZSU5 end hour ZSU5 end minute	0~23 0~59	0 0	
		ZSU5 Weekdays	ZSU5 Sunday ZSU5 Monday ZSU5 Tuesday ZSU5 Wednesday ZSU5 Thursday ZSU5 Friday ZSU5 Saturday	Yes/no Yes/no Yes/no Yes/no Yes/no Yes/no Yes/no	No No No No No No No	
	Device conf.	Date/time display		Local time		
		Change date		Change year	10~99	12
				Change month	1~12	6
				Change day	1~31	22
Change time			Hour	0~23	11	
			Minute	0~59	57	
	Second		0~59	0		
Conf. summer time			Yes/no	Yes		
Conf. language			German/English/ French	German		
Conf. log file			Level 0 to level 2	Level 0		
System info				HW ver.: SW ver. : Ser.no. : Sys.err :		
Factory setting			Reset parameter Reset BAC name Reset BAC descrip- tion Reset all			

watchdog	Conf. door 1		Conf. KZF 1	KZF1 duration	3~90	10
				KZF1 abort	Yes/ No	
				KZF1 retrigger	Yes/ No	
	Alarm suppression				0 ~ 250	50
	Alarm delay				0~250	100
Parameters SD card	Param. IO420 -> SD					
	Param. SD->IO420					
	BAC-Name IO420 -> SD					
	BAC-Name SD->IO420					

## 6.4 Passwords for BACnet

Password for DCC service in BACnet: GEZE

Password for reinitialization service (cold and warm start): GEZE-IO420

## 7 Firmware update for IO 420



All settings are lost when the firmware is updated.

### Safety fuse

- ▶ Back up name files "IO420\_V1.BAC"; "IO420\_V2.BAC" and "IO420MBZ1.BAC" on SD card.
  - ▶ Back up configuration files "IO420\_V1.CON"; "IO420\_V2.CON" and "IO420MBZ1.CON" on SD card.
- The backed-up data may no longer be compatible after firmware conversion, but they can be adapted manually. Further information on this subject can be found in the respective information sheet. The object descriptions cannot be backed up and must be entered again manually.

### Firmware update

Firmware updates are provided by GEZE in electronic form.

Copy the .hex file to the directory "..\FlashData\IO420".

- ▶ Open "IO420\_Flasher.bat" using the text editor.  
If the files reference is "IO420\_V1.hex", it must be changed to "IO420\_V1".  
CORRECT: "..\Flasher\STM32\ProgSTM32Pfs.bat 11 ..\FlashData\IO420\IO420\_V1"
- ▶ Save file.
- ▶ Switch off the voltage supply for the IO 420.
- ▶ Connect the adapter cable (mat. no.: 130829) to the IO 420.

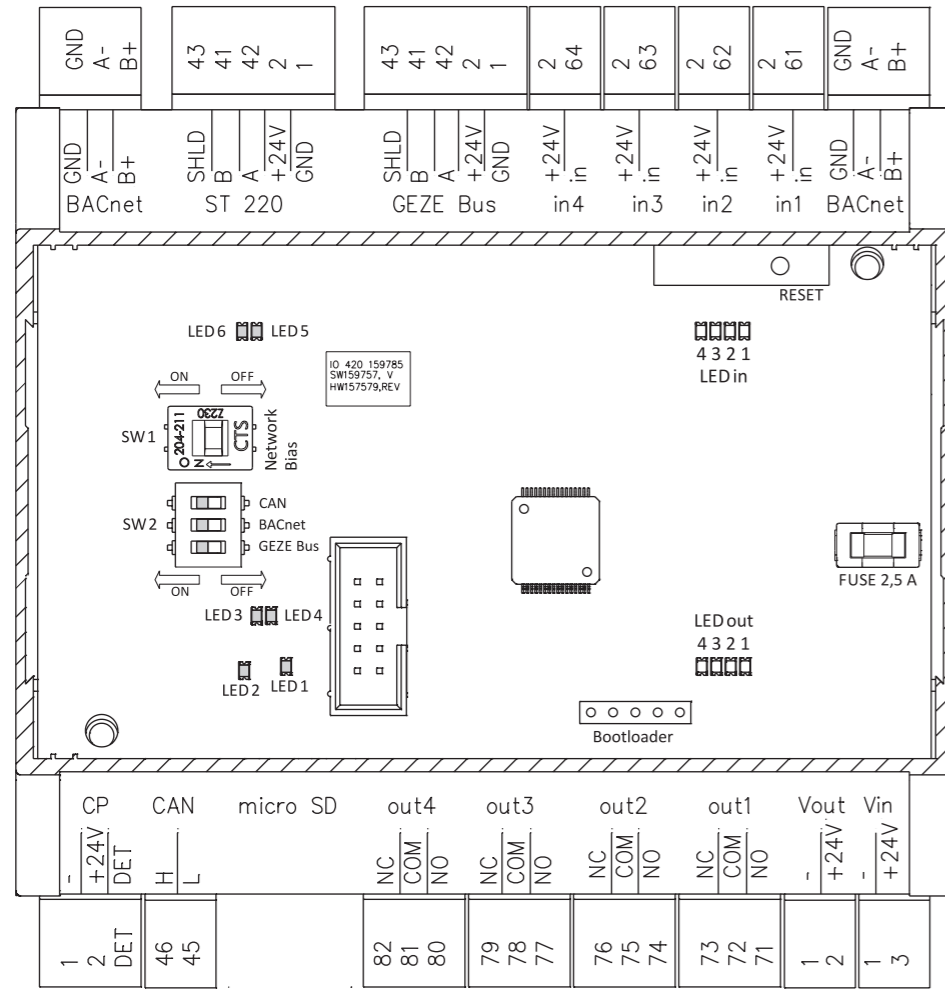


Fig. 5: Programming adapter cable

- ▶ Switch on the voltage supply for the IO 420.
- ▶ Execute the "IO420\_Flasher.bat" file.

If the following error message appears, proceed as follows:

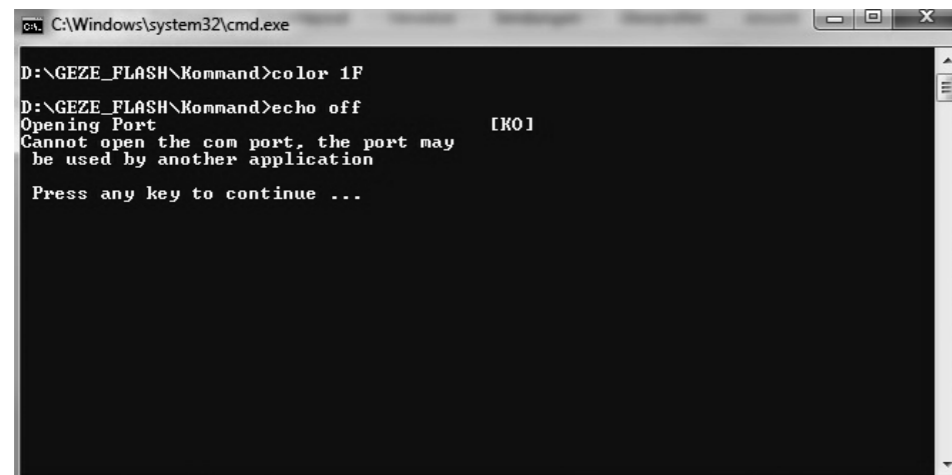


Fig. 6: Error "wrong COM port"

- ▶ Adapt COM port in file "IO420\_Flasher.bat":

WRONG: ..\Flasher\STM32\ProgSTM32Pfs.bat 11 ..\FlashData\IO420\IO420\_V1  
 CORRECT ..\Flasher\STM32\ProgSTM32Pfs.bat 3 ..\FlashData\IO420\IO420\_V1

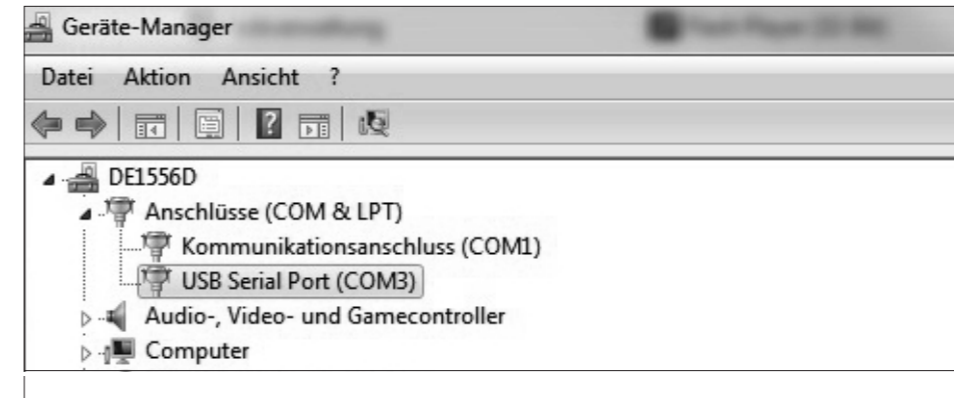


Fig. 7: COM port setting in the device manager

- ▶ Execute "IO420\_Flasher.bat" file again. The update progress is displayed in the window. The process takes several minutes.

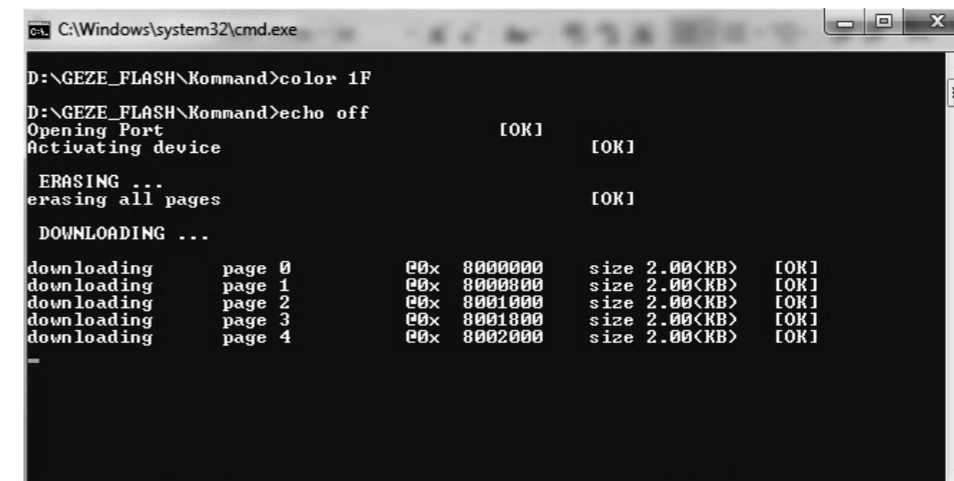


Fig. 8: Firmware update in progress.

- ▶ Switch off the voltage supply, unplug the cable.
- ▶ Re-boot IO 420.
- ▶ After the firmware update the IO 420 must be reset to factory settings.



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