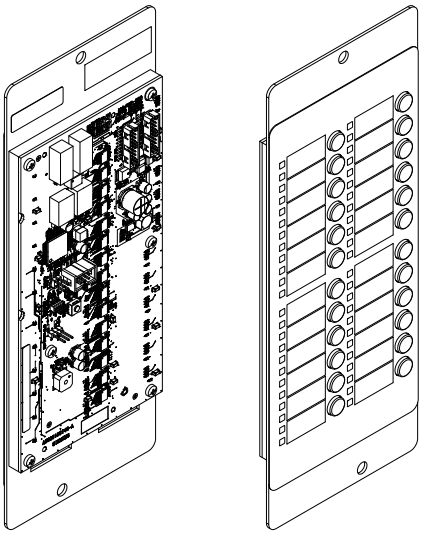
SIEMENS



FTO2023-U2, FTO2023-U3

Switch Module- Fire/Voice

Installation

Mounting

A6V12637772_en--_a
2024-02-14

Smart Infrastructure

Legal notice

Technical specifications and availability subject to change without notice.

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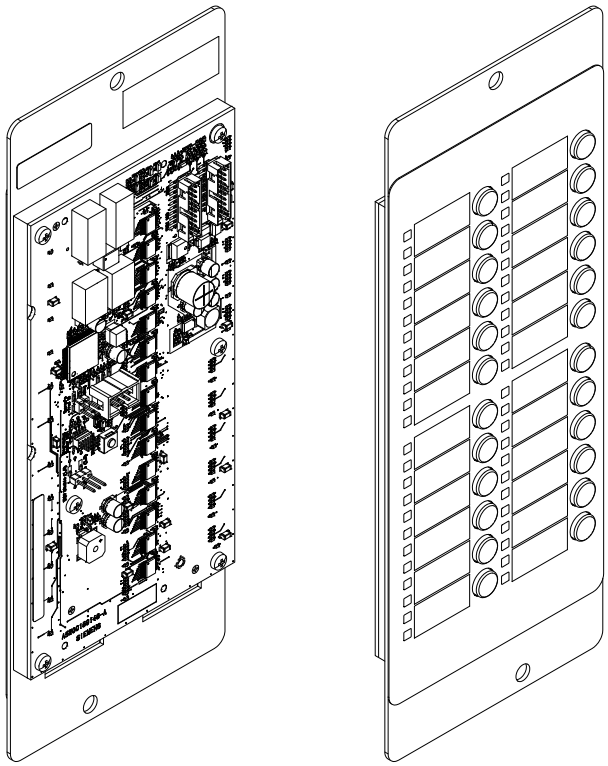
Table of contents

1 Switch module Fire/Voice FTO2023



1.1 Description

The 'Switch Module- Fire/Voice' FTO2023 is a programmable control module with 24 'Zones' and can be installed in a fire control panel, Fire voice control panel or in 'Remote microphone' VR2005 'Panels'.

An FTO2023 can be used to indicate events, provide status information, and activate fire/voice functions.

The 'Switch Module- Fire/Voice' FTO2023 is mounted as an option module in the window on the inner door. Up to four FTO2023 option modules can be installed in a window.

The 'Switch Module- Fire/Voice' FTO2023 is also available permanently integrated in the FCM2043 operating unit.

The FTO2023 must only be used in an environment that is dry and protected.

Connection of 'Switch Module- Fire/Voice' FTO2023

- Via the peripheral data bus to fire control panels
- Via the CAN bus to Fire voice control panels or 'Remote microphone' VR2005 'Panels'

Features:

- The following LED indicators and buttons can be configured for each 'Zone':
  - 1x LED indicator: RGB with seven configurable colors
  - 1x LED indicator: Yellow
  - 1x button with yellow LED as backlight

- Each LED may be configured as OFF, flashing, or constantly ON
- Audible confirmation when a button is pressed
- Can be controlled via CAN bus for Fire voice control panels or via peripheral data bus for fire control panels
- 'EMC'-protected and ROHS-compliant
- For use in UL and ULC applications
- All LEDs and buttons can be configured individually
- Configurable using Desigo Fire Safety Works/Cerberus-Engineering-Tool

2 Mounting of the 'Switch module – Fire/Voice' FTO2023

The mounting procedure for 'Switch Module- Fire/Voice' FTO2023 is the same for all 'Panels'.

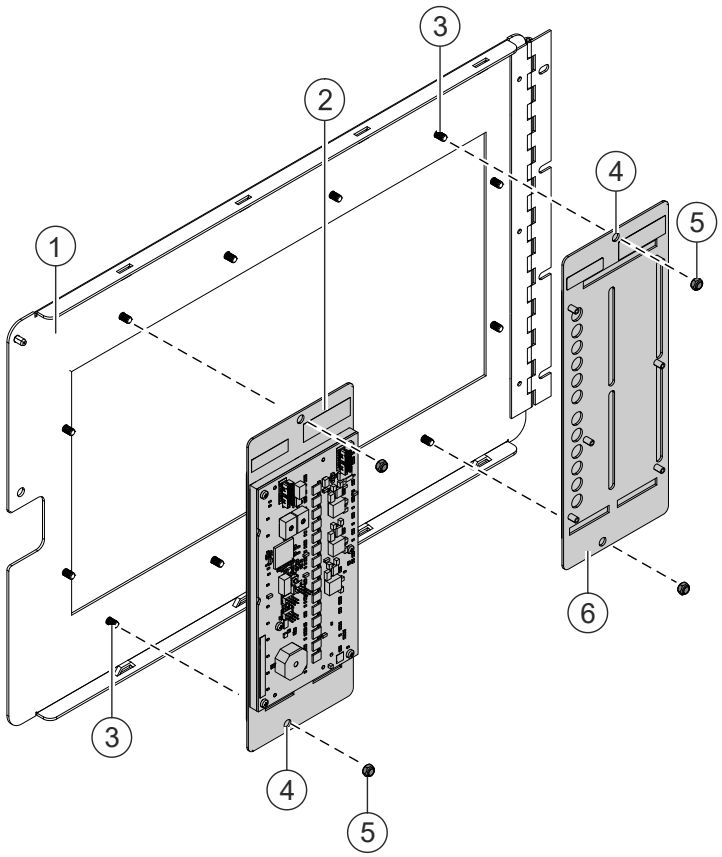


Fig. 1: Example of the mounting of a 'Switch Module- Fire/Voice' FTO2023 and an FCM2022 option module (empty) in the inner door (shown in rear view)

1 FHD2004 Inner door with window
2 'Switch Module- Fire/Voice' FTO2023
3 4 x fixing studs for option module
4 Fastening holes for option modules
5 4 x fixing nuts for option modules
6 FCM2022 option module (blank)

1. Mount the first option module (2 or 6) onto the mounting studs (3) above and below the inner door window. The front side of the module must, as shown, point to the front side of the window.
2. Mount the option module (2 or 6) using 2 fixing nuts (5) per module. Do not tighten the fixing nuts too much.
3. Install the remaining option modules in the inner door in the required order.
4. Align all option modules correctly and then firmly tighten the fixing nuts.

3 Wiring

3.1 CAN bus wiring in the VR2005 remote microphone

The 'Switch Module- Fire/Voice' FTO2023 is wired in the remote microphone VR2005 via the CAN bus.

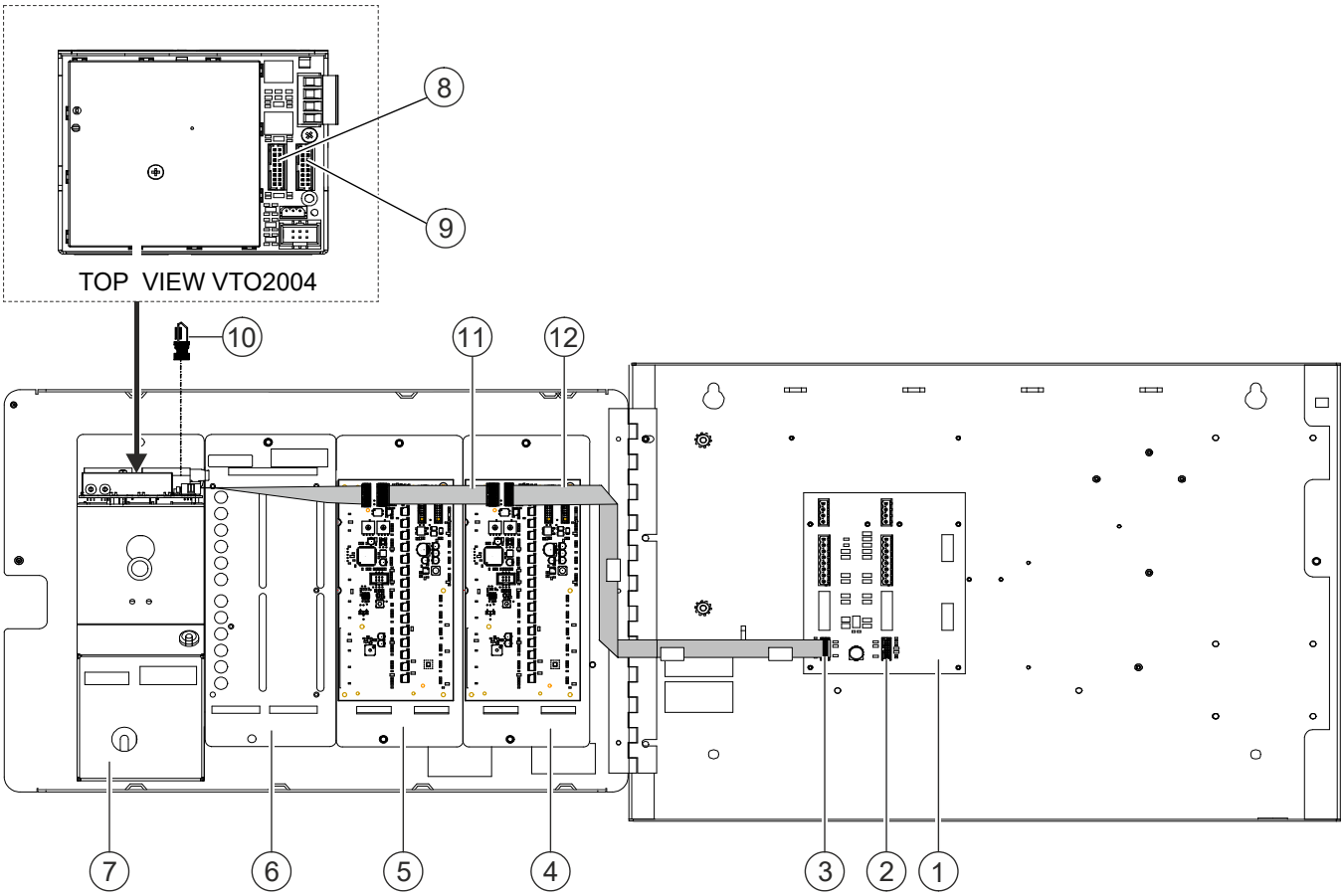


Fig. 2: Example of the wiring of the 'Switch Module- Fire/Voice' in the housing (1HU) with an option module (Microphone)

1 VTA2001 voice terminal board
2 VTA2001 connector X9, CAN bus
3 VTA2001 connector X10, CAN bus
4 FTO2023 'Switch Module- Fire/Voice' outer right
5 FTO2023 'Switch Module- Fire/Voice' outer left
6 FCM2022 option module (blank)
7 VTO2004 Option module (Microphone)
8 VTO2004 connector X205
9 VTO2004 connector X204

10 Terminating resistor A5Q00055918D on the X205

11 CAN bus ribbon cable jumper

12 FTO2023 connector X205, CAN bus input from VTA2001

Make all connections with 16-core CAN bus ribbon cables.

Mounting references to 'left' and 'right' orientation are as viewed from the rear with the inner door open.

Wiring of one single or the last remote microphone VR2005

1. Connect the X10 (3) CAN bus on the VTA2001 voice terminal board (1) to connector X205 (12) on the rightmost 'Switch Module- Fire/Voice' FTO2023 (3).
2. Connect all the 'Switch Module- Fire/Voice' FTO2023 on the inner door using the ribbon cable jumpers (11).
3. Connect X204 of the leftmost 'Switch Module- Fire/Voice' FTO2023 (5) with the connector X204 (9) of the Option module (Microphone) VTO2004 (7).
4. Fasten a terminating resistor A5Q00055918D (10) onto connector X205 (8) of the Option module (Microphone) VTO2004.

Wiring for several remote microphones VR2005

If a system has more than one remote microphone VR2005, an additional ribbon cable is installed in all intermediate panels. This cable is installed between connector X205 (8) on the VTO2004 and connector X9 (2). It establishes the CAN bus daisy chain connection to the next panel in the system.

You will find more detailed wiring instructions in document A6V10405564 'Installation Instructions VTA2001-A1'.

3.2 CAN bus wiring in the fire voice control panel

In the following wiring example, the upper window with the operating unit has been omitted to give a better overview.

Fire voice control panel with rear view of the open inner door

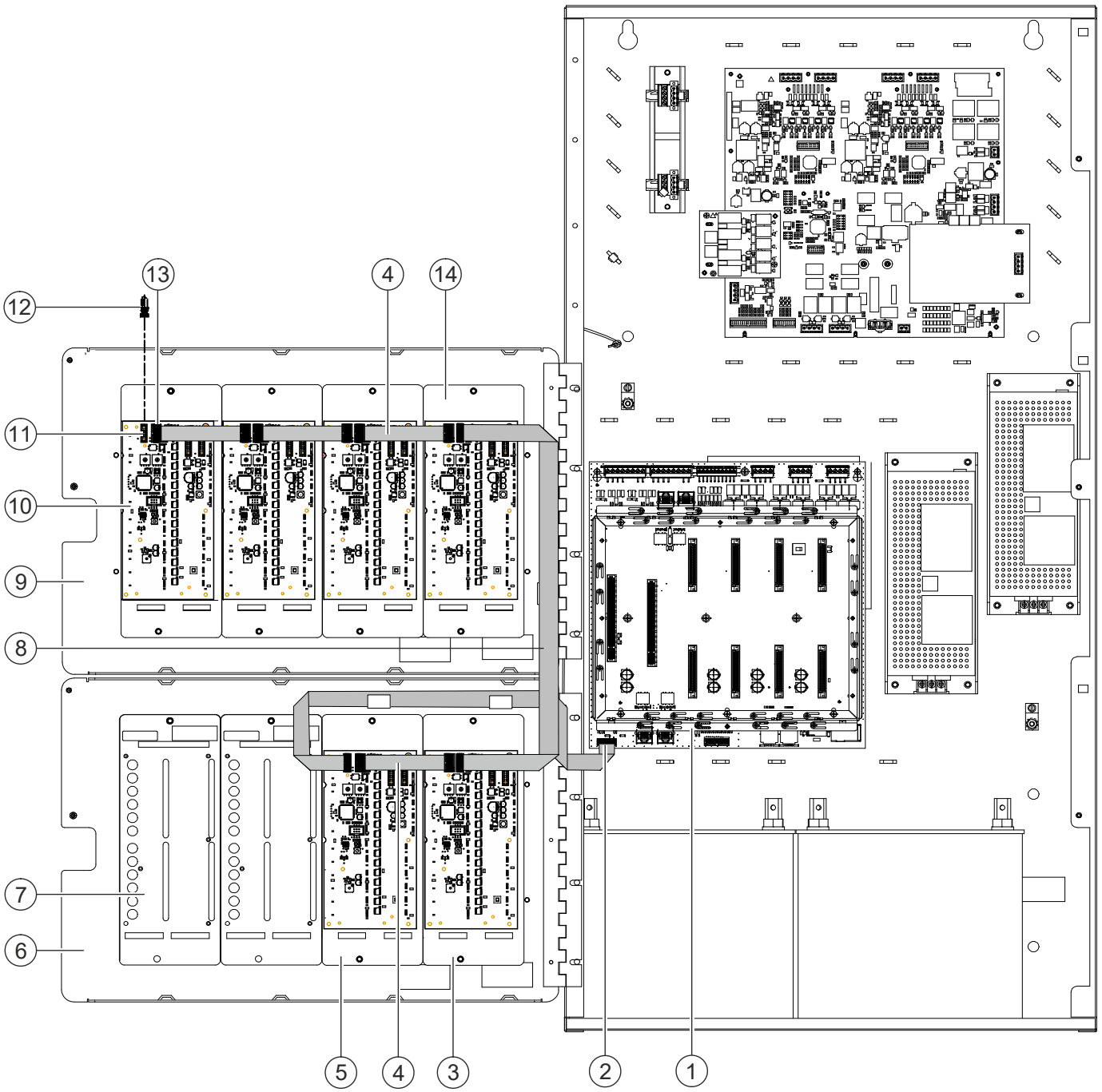


Fig. 3: Example of the wiring of 6x 'Switch Module- Fire/Voice' FTO2023 and 2x FCM2022 on the FV2050/ FV924

1 VCA2002 Card Cage

2 Card Cage connector X102

3 Right-most option module 5 in lower window

4 CAN ribbon cable jumper connecting adjacent 'Switch Module- Fire/Voice' FTO2023

5 The option module 6 in the lower window (last 'Switch Module- Fire/Voice' FTO2023)

6 Lower inner door

7 2 x FCM2022 option module (empty)

8 CAN ribbon cable interconnecting the 'Switch Module- Fire/Voice' FTO2023 mounted in the bottom and middle windows

9 Middle inner door

10 Leftmost option module 4 in the middle window
Can either be a 'Switch Module- Fire/Voice' FTO2023 as shown, or an 'Option module (Microphone)' VTO2004 (not shown in picture).

11 X204, open CAN bus connection B

12 Terminating resistor A5Q00055918D for open CAN bus connection B, X204

13 X205, open CAN bus connection A

14 Right-most option module 1 in middle window

Wiring

Make all connections with 16-core CAN ribbon cables.

Mounting references to 'left' and 'right' orientation are as viewed from the rear with the inner door open.

1. There are two types of wiring:
- If one or more 'Switch Module- Fire/Voice' FTO2023 are mounted in the bottom window of the inner door (6), connect connector X102 (2) on the VCA2002 card cage (1) and connector X204 on the leftmost 'Switch Module- Fire/Voice' FTO2023 (5). Then continue from step 2 below.
- If there is no 'Switch Module- Fire/Voice' FTO2023 mounted in the bottom window of the inner door (6), connect the CAN ribbon cable between card cage connector X102 (2) and connector X205 on the rightmost option module (14) that is mounted in the middle window (9). Continue from step 4 below.

2. Interconnect all 'Switch Module- Fire/Voice' FTO2023 mounted in the bottom window (6).

3. Connect a CAN ribbon cable between connector X205 on the right-most option module (3) in the bottom window to connector X205 of the right-most option module (14) that is mounted in the middle window.

4. Interconnect all 'Switch Module- Fire/Voice' FTO2023 mounted in the middle window.

5. Fix the ribbon cables in place using stick-on cable supports.

6. Install a terminating resistor A5Q00055918D (12) on the leftmost 'Switch Module- Fire/Voice' FTO2023 (10) in the middle inner door as follows:
- If the leftmost option module (10) in the middle row is a 'Switch Module- Fire/Voice' FTO2023, attach the terminating resistor to the option module connector X204 (11).
- If the leftmost option module in the middle row is a Option module (Microphone) VTO2004, attach the terminating resistor to the connector X205 of the Option module (Microphone) VTO2004.

3.3 Operating unit with FTO2023 and option module FTO2023 on CAN bus

The following wiring example shows the peripheral data bus wiring of the 'Switch Module- Fire/Voice' FTO2023 in the operating unit FCM2043 and option modules with FTO2023 on the CAN bus.

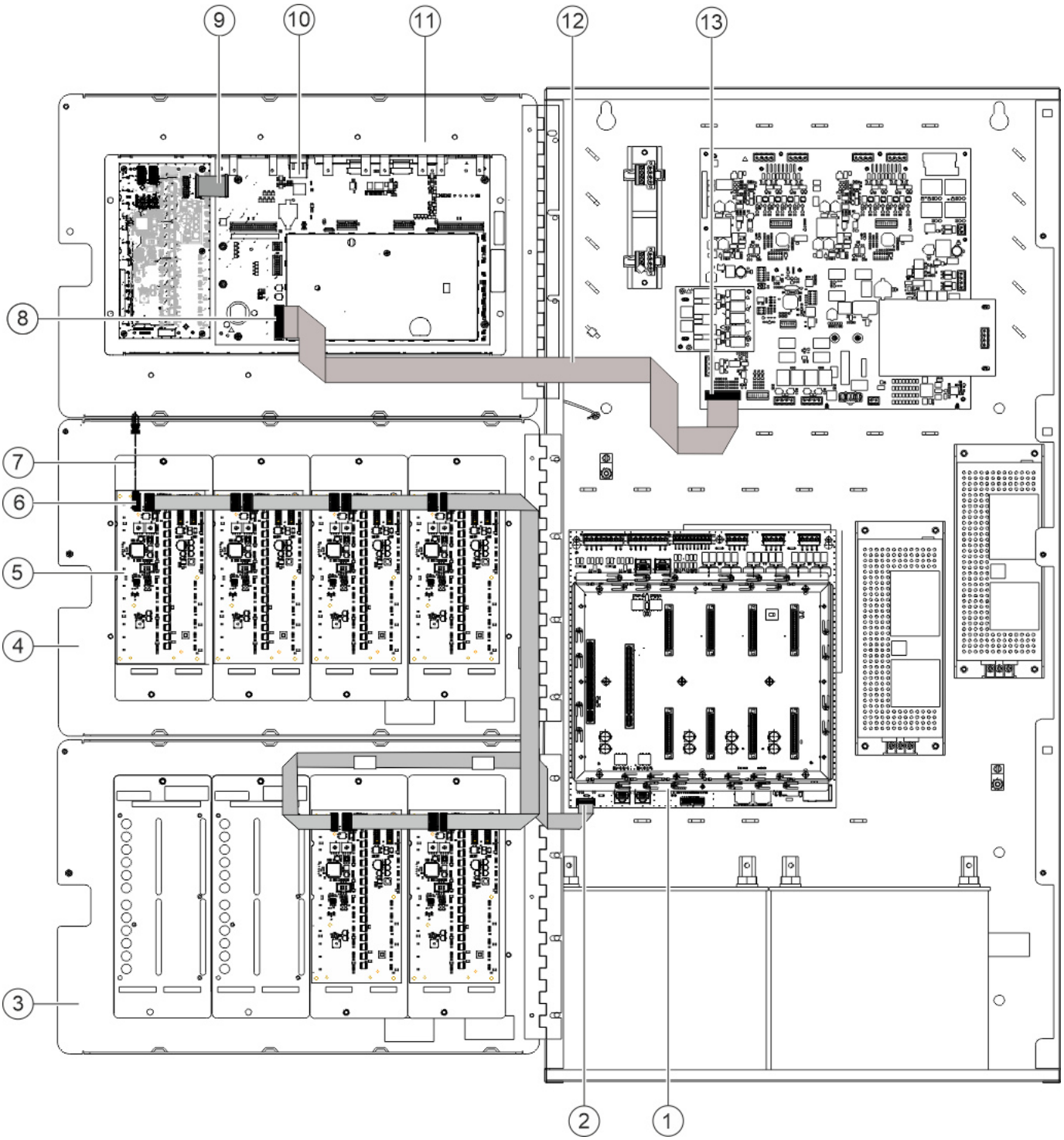


Fig. 4: Example wiring of the FCM2043 operating unit with additional FTO2023 on the CAN bus

1 VCA2002 Card Cage
2 Card Cage connector X102
3 Lower inner door
4 Middle inner door

5 Leftmost option module 4 in the middle window
Can either be a 'Switch Module- Fire/Voice' FTO2023 as shown, or an 'Option module (Microphone)' VTO2004 (not shown in picture).

6 X204, CAN bus connection A of the first FTO2023 option module

7 X204, open CAN bus connection B of the FTO2023 in the FCM2043 operating unit, A5Q00055918D terminating resistor

8 Peripheral data bus connection on PMI & mainboard (X3)

9 Peripheral data bus jumper connection from PMI & mainboard to FTO2023 on the operating unit

10 PMI & mainboard

11 FCM2043 operating unit (+ switch)

12 Peripheral data bus cable from periphery board to PMI

13 Periphery bus connection on periphery board (X201)

CAN bus wiring of the FTO2023 for the FCM2043 operating unit

1. Use the 34-pin ribbon cable (12) to connect the PMI & mainboard (10) of operating unit FCM2043 (11) from connector X3 (8) to connector X201 (13) on the periphery board.
2. Make sure that the ribbon cable jumper (9) is connected between the PMI & mainboard (X400) and FTO2023 of the operating unit (X203).
3. Connect the option modules 'Switch Module- Fire/Voice' FTO2023 in accordance with the 'CAN bus wiring in the fire voice control panel' chapter.
4. Install an A5Q00055918D terminating resistor (7) at connection X204 of the last 'Switch Module- Fire/Voice' FTO2023 on the CAN bus.
5. Fix the ribbon cables in place using stick-on cable supports.

3.4 Wiring of peripheral data bus in the fire control panel

In the following wiring example, the upper window with the operating unit has been omitted to give a better overview.

Make all connections with peripheral data bus ribbon cables.

Mounting references to 'left' and 'right' orientation are as viewed from the rear with the inner door open.

Wiring with max. 4x 'Switch Module- Fire/Voice' FTO2023

This wiring view is identical for fire control panels FC2025/FC922 and FC2050/FC924. Up to four 'Switch Module- Fire/Voice' FTO2023 can be mounted on each inner door FHD2004.

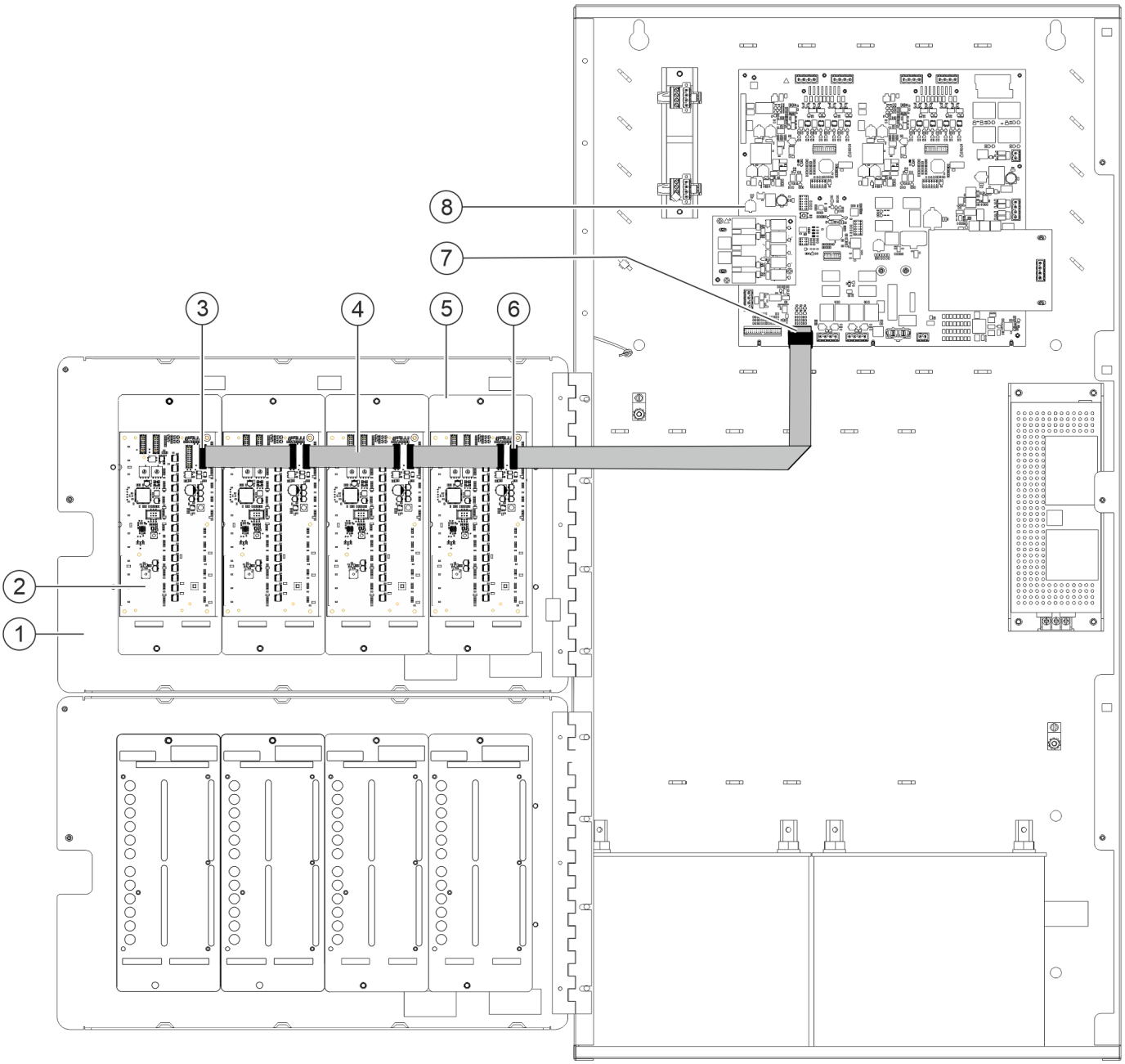


Fig. 5: Example wiring of 4x 'Switch Module- Fire/Voice' FTO2023 in fire control panel FC2050/FC924

1	Inner door FHD2004
2	Left option module 'Switch Module- Fire/Voice' FTO2023
3	Plug connection X203 for last cable jumper
4	Cable jumper from X202 to X203 between the option modules FTO2023
5	Right option module 4 'Switch Module- Fire/Voice' FTO2023
6	Plug connection X203 on the right option module for the peripheral data bus input
7	Plug connection X202 on the periphery board for the peripheral data bus output

8 Periphery board

Wiring

1. If only 'Switch Module- Fire/Voice' FTO2023 are mounted in the top window of the inner door (1), connect the peripheral data bus ribbon cable from connector X202 (7) on the periphery board (8) and connector X203 (6) on the right 'Switch Module- Fire/Voice' FTO2023 (5).
2. Interconnect all the 'Switch Module- Fire/Voice' FTO2023 between X202 and X203 with a cable jumper (4) up to the last 'Switch Module- Fire/Voice' FTO2023 (5) on the left.
3. If required, fix the ribbon cables in place using stick-on cable supports or cable ties.

Wiring with max. 8x 'Switch Module- Fire/Voice' FTO2023

This wiring view only applies to fire control panel FC2050/FC924 with a maximum of eight option modules 'Switch Module- Fire/Voice' FTO2023 in both windows.

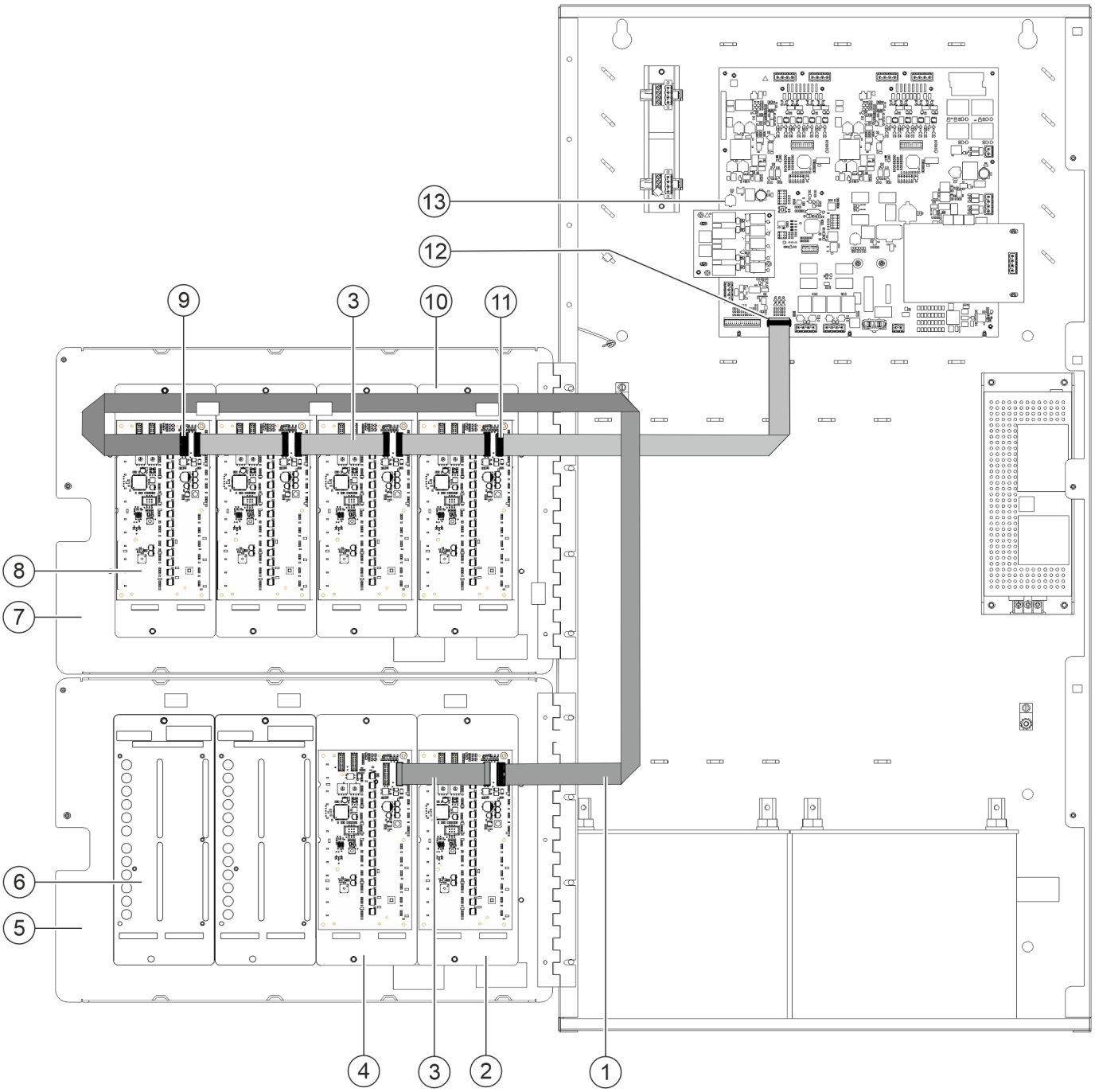


Fig. 6: Example view of wiring 6x 'Switch Module- Fire/Voice' FTO2023 in fire control panel FC2050/FC924

1 Peripheral data bus connection cable from the bottom right option module (X203) to the top left option module (X202)

2 Bottom right option module 'Switch Module- Fire/Voice' FTO2023

3 Cable jumper from X203 to X202 between the option modules FTO2023

4 Bottom left option module 'Switch Module- Fire/Voice' FTO2023

5 Lower inner door

6 Option module (blank) FCM2022

7 Middle inner door

8 Left option module 'Switch Module- Fire/Voice' FTO2023 in the middle inner door

9 Plug connection X202 for connection cable from the bottom door

10 Right option module 'Switch Module- Fire/Voice' FTO2023 in the middle door

11 Plug connection X203 for the peripheral data bus input

12 Plug connection X202 on the periphery board for the peripheral data bus output to the right option module (X203) in the top door

13 Periphery board (500p) FCI2017

Wiring

1. If a 'Switch Module- Fire/Voice' FTO2023 is mounted in the bottom window of the inner door (5), connect the connector X202 (12) to the periphery board (13) and the connector X203 to the right 'Switch Module- Fire/Voice' FTO2023 in the top door (11).
2. Connect the peripheral data bus ribbon cable (1) between the connector X203 of the bottom right option module (2) and the connector X202 (9) of the top left option module (8).
3. Interconnect all the 'Switch Module- Fire/Voice' FTO2023 between X203 and X202 with a cable jumper (3).
4. Fix the ribbon cables in place using stick-on cable supports.

3.5 Operating unit with FTO2023 on peripheral data bus

This wiring view is identical for fire control panels FC2025/FC922 and FC2050/FC924 with option modules FTO2023 and an operating unit FCM2043.

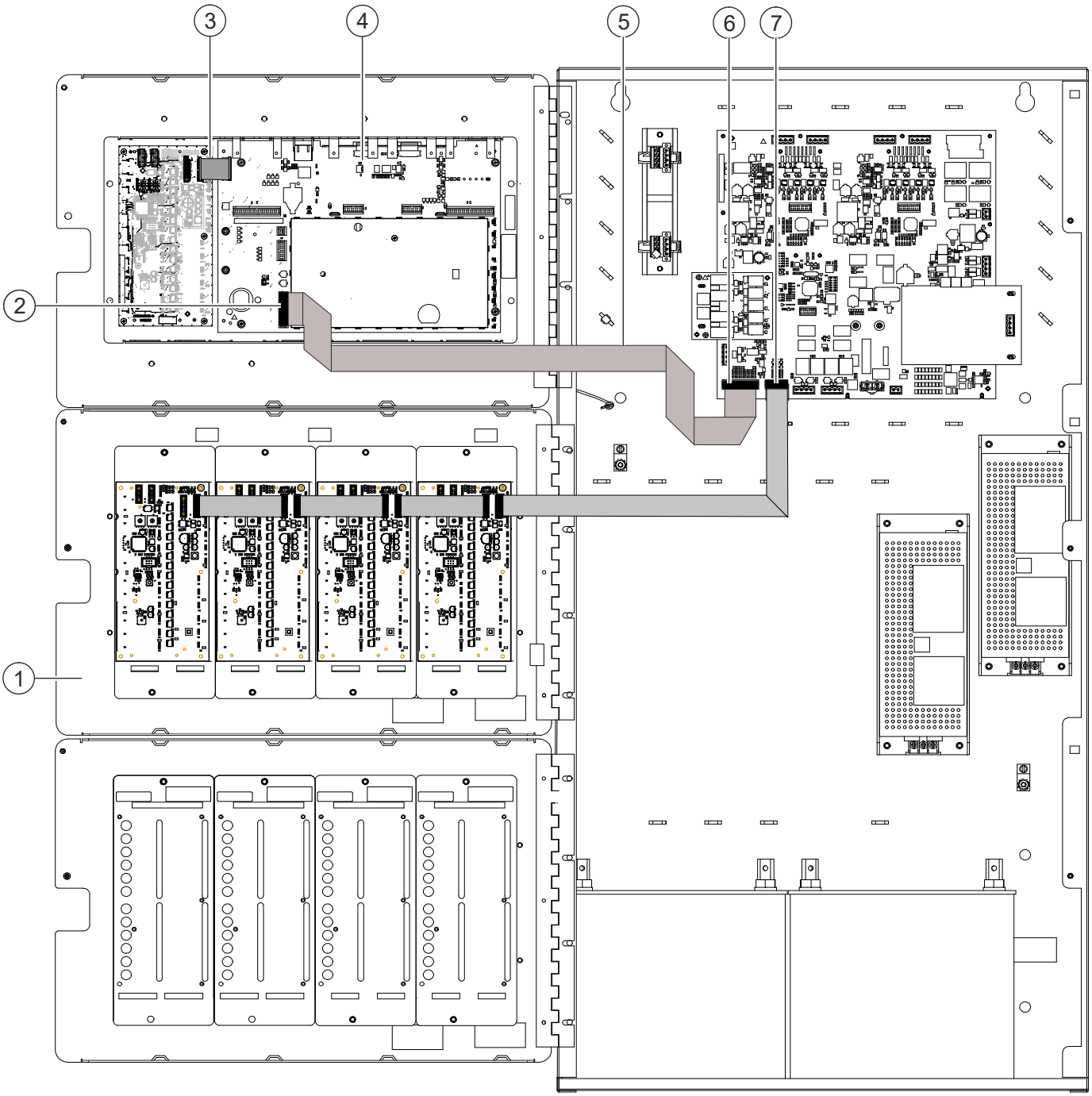


Fig. 7: Example wiring of the FCM2043 operating unit with additional FTO2023 on the peripheral data bus

1 Inner door with max. 4 option modules FTO2023

2 Peripheral data bus connection on PMI & mainboard (X3)

3 Peripheral data bus jumper connection from PMI & mainboard to FTO2023 on the operating unit

4 PMI mainboard of operating unit FCM2043

5 Peripheral data bus cable from periphery board to PMI

6 Peripheral data bus connection (X201) on periphery board

7 Peripheral data bus connection (X202) on periphery board to the additional option modules (if present)

Wiring of peripheral data bus on the FTO2023

1. Use the 34-pin ribbon cable (5) to connect the PMI & mainboard of operating unit FCM2043 from connector X3 (2) to connector X201 (6) on the periphery board.
2. Make sure that the ribbon cable jumper (3) is connected between the PMI & mainboard (X400) and FTO2023 of the operating unit (X203).
3. Use the peripheral data bus ribbon cable to connect the first option module 'Switch Module- Fire/Voice' FTO2023 from connector X203 to connector X202 (7) of the periphery board.
4. Interconnect the other 'Switch Module- Fire/Voice' FTO2023 between X202 and X203 with a cable jumper up to the last 'Switch Module- Fire/Voice' FTO2023.
5. Fix the ribbon cables in place using stick-on cable supports or cable ties.

You will find details of wiring for the option modules 'Switch Module- Fire/Voice' FTO2023 in the corresponding chapter.

4 Views

Printed circuit board view 'Switch Module- Fire/Voice'

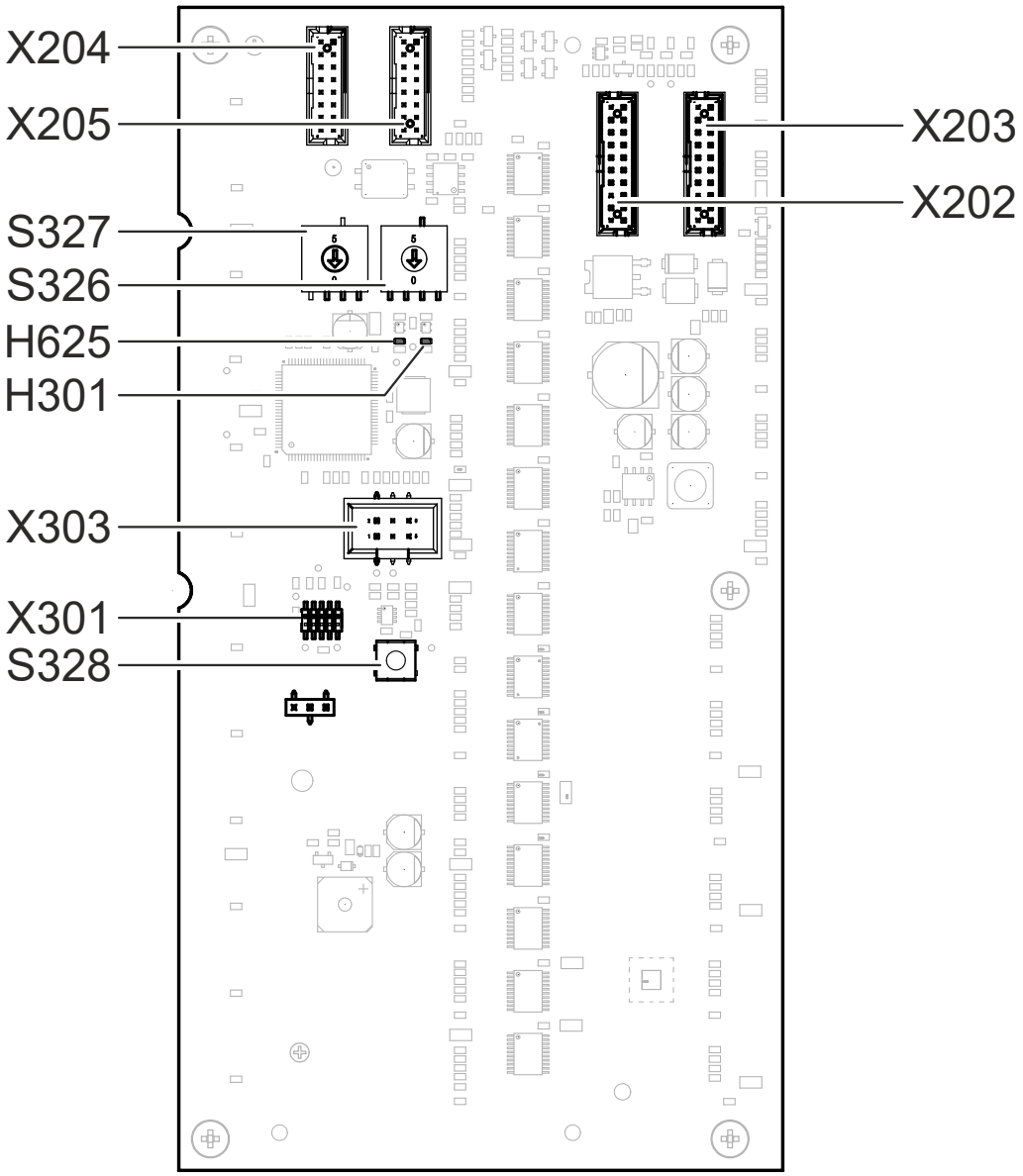


Fig. 8: Printed circuit board view of the 'Switch Module- Fire/Voice' FTO2023

Element	Des.	Function
Indicators	H301	Status LED for CAN bus
	H625	Status LED for microprocessor
Switches and keys	S326	Switch for device address (ONES)
	S327	Switch for device address (TENS)
	S328	Reset button

Element	Des.	Function
Connector plug and jumper	X202	Peripheral data bus connector B [1]
	X203	Peripheral data bus connector A [1]
	X204	CAN bus connector B [1]
	X205	CAN bus connector A [1]
	X303	Not used
	X301	Jumper 'watchdog'; default: position 'ON'

[1] The plugs for the CAN bus and the peripheral data bus are looped through and interchangeable according to the wiring diagrams.

Detailed view and operation of a zone

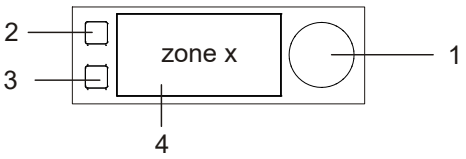


Fig. 9: 'Switch Module- Fire/Voice' FTO2023, view of LEDs per zone

1 Button with yellow LED
2 Multi-color LED
3 Yellow LED
4 Inscription field

5 Indication elements

Status indications

LED	Color	Condition	Meaning
H301	Yellow	Off	CAN bus status: Normal operation. **Note**: The LED only indicates the status of CAN bus communication. The LED is always off if CAN bus communication is not in use.
		Constantly on	CAN bus status: Error. Communication has been interrupted.
H625	Green	Constantly off	Microprocessor is not running.
		Flashes	Microprocessor is running.

Operation and indication elements

Each of the 24 operating buttons on the 'Switch Module- Fire/Voice' FTO2023 and the function of the indicator lamps can be configured individually in Desigo Fire Safety Works/Cerberus-Engineering-Tool.

6 Adjustment elements

The addresses for the CAN bus and peripheral data bus are set using the two DIP rotary switches S326 and S327.

- S326: For ONES digits, right switch
- S327: For TENS digits, left switch

Use a small flat-tip screwdriver to set the address.

Turn the axis of the switch in question until the arrow points to the digit of the address you want.

Setting the CAN bus address

The CAN bus address for each 'Switch Module- Fire/Voice' is determined by the installer and can be set either before or after mounting the module in the Fire voice control panel FV2025/FV922/FV2050/FV924 or in a 'Remote microphone' VR2005. To simplify addressing and avoid faults, it is recommended that the module address be set after the module is mounted in the panel.

CAN bus addresses between 1 and 99 are valid on the 'Switch Module- Fire/Voice' FTO2023.

The hardware addresses set for each module must correspond to the matching addresses 201 to 299 in Desigo Fire Safety Works/Cerberus-Engineering-Tool.

The CAN bus address 0 is reserved and must not be used for the option modules.

Setting the peripheral data bus address

The two-digit peripheral data bus address for each 'Switch Module- Fire/Voice' FTO2023 is determined by the installer and can be set either before or after mounting the module in a fire control panel.

Peripheral data bus addresses between 20 and 35 are valid for the 'Switch Module-Fire/Voice' FTO2023.

The set address must match the module address of the corresponding 'Switch Module-Fire/Voice' FTO2023 in Desigo Fire Safety Works/Cerberus-Engineering-Tool.

Reset button

Button S328: Reset button for the microprocessor

Jumper settings

Jumper X301: Jumper 'watchdog'; should always be in the default position 'ENABLED' in normal operation.

Configuration

Every 'Switch Module- Fire/Voice' FTO2023 must be configured before it can communicate with the superordinate fire control panel, Fire voice control panel, or a 'Remote microphone' VR2005.

You will find detailed configuration information in document 'A6V10315023/ A6V10333423' 'Configuration'.

7 Technical data

Supply input	Voltage	DC 24 V
	Curent	Standby: 17 mA (no LED activated) Active: 17 mA + 2.6 mA per LED Max. 143 mA
Supply output	Voltage	DC 24 V
	Curent	Looped, max. 1 A
LEDs	Quantity	24 zones, each with: ● 1 x multi-color ● 1 x yellow ● 1 x yellow in button
Buttons	Quantity	● 24
Configuration	Function per zone	Can be configured with Desigo Fire Safety Works/Cerberus-Engineering-Tool
Connectors	Peripheral data bus (input and output) for fire control panels	X202, X203 Plug connection with ribbon cable
	CAN bus (input and output) for Fire voice control panels	X204, X205 Plug connection with ribbon cable

8 FCC Statement

⚠ WARNING	
	**Installation and usage of equipment is not in accordance with instructions manual** Radiation of radio frequency energy Interference to radio communications ● Install and use equipment in accordance with instructions manual. ● Read the following information.

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications.

It has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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