SIEMENS

XC10
Extinguishing control unit

XC1001-A / XC1005-A / XC1003-A

Installation
Commissioning
Maintenance

MP2.1

Building Technologies

Fire Safety & Security Products

1 About this document

Purpose of the document
This document describes the installation, the commissioning and the maintenance of the XC10xx-A equipment. It provides an overview of the structure and functions of the system as a whole as well as of the individual devices.
While following the instructions, a reliable operation is assured.

Scope
The information contained in this document is valid for the market package MP2.1. The document also contains information on country-specific components. Country-specific components are marked with square brackets, e. g. [FR], and may not be sold/used in your country.

Target audience
This document and the information contained therein are aimed at the target groups defined below:

Personnel	Activity	Qualification
Product manager	– Performs local product management – Responsible for exchanging information between the headquarters and his/her Regional Company (RC) for his/her product range	– Has suitable specialist training for the function and for the product range – Has attended the PM training courses
Project manager	– Performs project management – Coordinates the use of all persons and resources involved in the project according to schedule – Continuously supplies information necessary for project realisation	– Has suitable specialist training for the – function, scale of the project and product range – Has attended the training courses for Project Managers
Installer	– Assembles and installs the components at the place of installation – Performs a subsequent check of the installation	– Has received specialized training in the area of building installation technology or electrical installations
Commissioning personnel	– Configure the product at the place of installation according to customer specific requirements – Check the product operability and release the product for use by the operator – Search for and correct malfunctions	– Has suitable specialist training for the function and for the product range – Have attended the training courses for commissioning personnel
Maintenance personnel	– Carry out all maintenance work and check for correct functioning	– Has suitable specialist training for the function and for the product range

Reference documents

Designation	Heading
A6V10257477_a_fr	XC10 range Operating manual

Identification of the document

Location	Definition
Title page	– Short name – Name in full – Document purpose
Last page bottom left-hand side	– Document no. (number-modification index-language-country) – Date of issue
Last page bottom right-hand side	– User's guide – Register

Revision history

Document no.	Edition date	Brief description
A6V10257473_a_en_--	11/2009	First edition MP2.1
A6V10257473_b_en_--	01/2010	Corrections after field tests: - Chap. 3: Standards / 4.19 monitoring the status of components (spelling mistake) - Chap.4: fig 4 updated - Chap. 6.3 label for XC1003-A is Pos. 8 not Pos.4 - Chap. 7.6.2 …. “to equipment outside” (spelling mistake) - Chap 7.8: 24V polarity output was wrong. 24V(+) is on X5-3 and 24V(-) is on X5-4 - Chap. 8.2: note added for the connection of the 24V power supply - Chap 8.3: fig 31 modified: resistor 3.3k on RS485 line removed - Chap 11: fig 33 and 34 updated - Chap 14.2: PMI picture is added on the top of the description table, for an easier checking - Chap. 16.2: access code for the alarm counter was wrong - Spelling mistakes

2 Safety instructions

2.1 Danger levels

The following pictograms indicate the possible danger levels, their severity and consequences.

DANGER	Imminent danger! ➔ Serious injuries or death.
WARNING	Potentially dangerous situation ➔ Serious injuries or death.
CAUTION	Potentially dangerous situation ➔ Light injuries or material damage.
NOTE	Important information requiring special attention.

2.2 Safety instructions

Products are developed and manufactured in accordance with the applicable international and European security standards.
The local rules of installation, exploitation and destruction of the product apply and must be respected just like the safety instructions which appear in the documentation of the product.

Electric installations

CAUTION	Interventions on wiring should be carried out only by qualified personnel.
CAUTION	Respect the safety instructions in explosive zone.

- Hardware must not be powered during commissioning and maintenance
- Affix an external label “DANGER external voltage” on the terminals connected to an external voltage source
- Separately lay the power lines towards the control unit. They must be fitted with their own, clearly identified fuses
- Ground in accordance with the local security standards

Assembly, installation, commissioning and maintenance

- If any tools or accessories such as ladders are required, safe and suitable devices must be used
- When the extinguishing control panel is started up, it must be ensured that no instable conditions can occur
- Controls may only be set to normal function when the product operability has been completely tested and the system has been handed over to the customer.
- Control release for testing should not damage the installation

- Avoid the inopportune release of RT-alarm
- Inform the reception station before an RT-alarm test
- Installation and commissioning shall be performed by trained personal

Product operation check

- Inform the personnel of the formation of a smoke cloud and presence of noise
- Inform the personnel before alarm devices check and anticipate possible panic reactions
- Warn the alarm reception centers and the fault reception stations connected to the system before carrying out the tests

Design modifications of systems and products

- Modifications to the system and to individual products may lead to faults, malfunctioning and safety risks
- Intended system modifications or extensions require written approval from Siemens and the relevant safety authorities

Components and spare parts

- Components and spare parts must comply with the technical specifications defined by Siemens. Only use products recommended or prescribed by Siemens
- Only use fuses with the specified fuse characteristics
- Wrong battery types and improper battery changing lead to a risk of explosion. Only use the same battery type or an equivalent type recommended by Siemens
- Batteries must be disposed of in an environmentally friendly manner. Country specific directives and regulations must be observed. They must be deposited at the collection places assigned to this purpose.
- Note that the cylinders containing the extinguishing agent are under pressure and that they must consequently be replaced in accordance with the safety instructions in force

Disregard of the safety regulations

Before they are delivered, products are tested to ensure they function correctly when used properly. Siemens disclaims all liability for damage or injuries caused by the incorrect application of the instructions or the disregard of danger warnings contained in the documentation. This applies in particular to:

- Personal injuries or damage to property caused by improper use and incorrect application
- Personal injuries or damage to property caused by disregarding safety instructions in the documentation or on the product
- Personal injury or damage to property caused by poor maintenance or lack of maintenance

2.3 Standards and directives complied with

A list of the standards and directives complied with is available at your Siemens contact partner.

3 Standards

In addition to the requirements of EN12094-1 and EN54-2, the XC10xx-A control panel complies with the following optional functions:

EN 12094-1	
Clause	**Description**
4.17	Delay of extinguishing signal
4.18	Signal representing the flow of extinguishing agent
4.19	Monitoring the status of components
4.20	Emergency hold device
4.21	Control of flooding time
4.23	Manual only mode
4.24	Triggering signals to equipment within the system
4.26	Triggering of equipment outside the system
4.27	Emergency abort device
4.29	Release of the extinguishing media for selected flooding zones (only for XC1003-A)
4.30	Activation of alarm device with different signals

EN 54-2 / **A1**	
Clause	**Description**
7.8	Output to fire alarm devices (Item C – EN54-1)
7.9.1	Control of fire alarm routing equipment (Item E – EN54-1)
7.12.1	Dependencies on more than one alarm signal (Type A)
7.13	Alarm counter (only with XC1005-A)
8.3	Fault signals from point
8.4	Total loss of the power supply
8.9	Output to fault warning routing equipment (Item J – EN54-1)
10	Test condition

Following additional functions are also available:

- transmission of information's outside the panel:
  - 8 programmable digital outputs
  - programmable relay contacts
- reception of information's from outside:
  - control inputs (3 are programmable)
- 24V power supply output

4 Overview

The equipment is declined in 3 versions:

- Wall mounting cabinet: XC1001-A / XC1005-A
- 19” rack cabinet: XC1003-A

4.1 XC1001-A

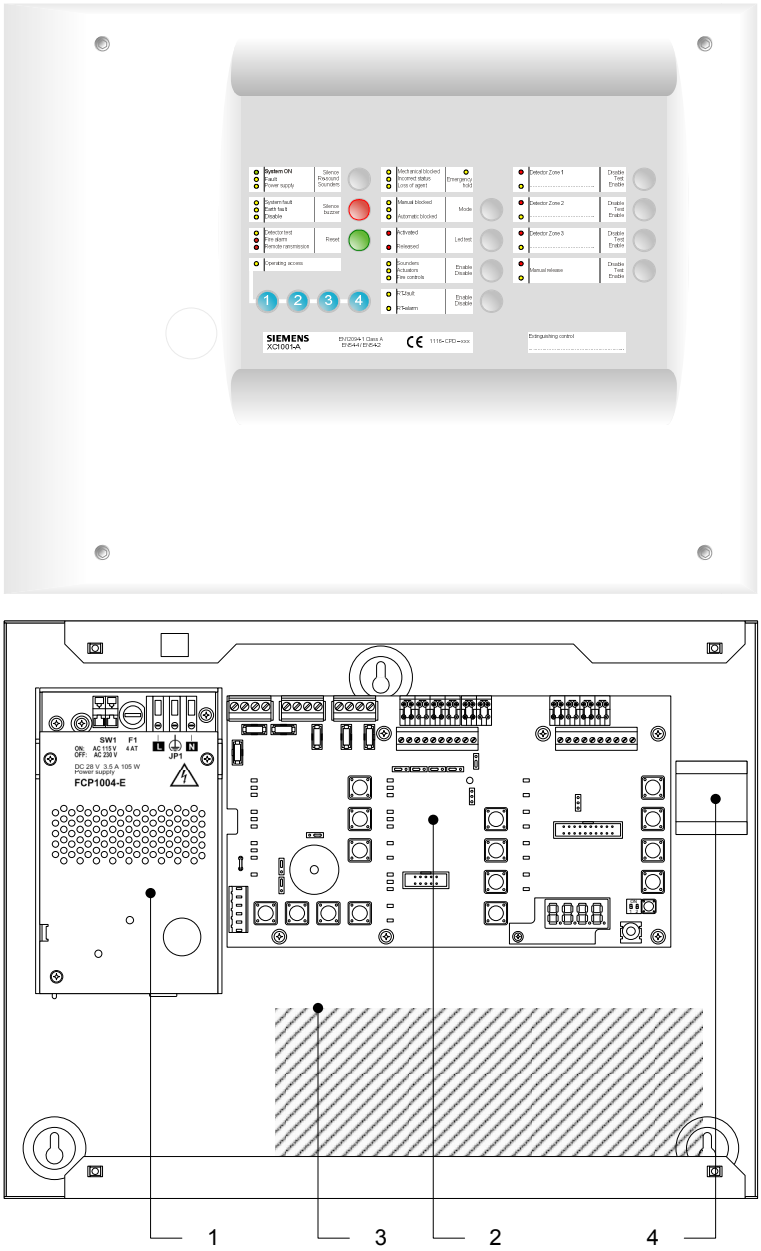


Fig. 1 XC1001-A

1 FCP1004-E power supply unit with charger
2 XCM1002 mainboard
3 4.5 A/h batteries
4 DIN rail for accessory mounting (Z3B171 relay module)

4.2 XC1005-A

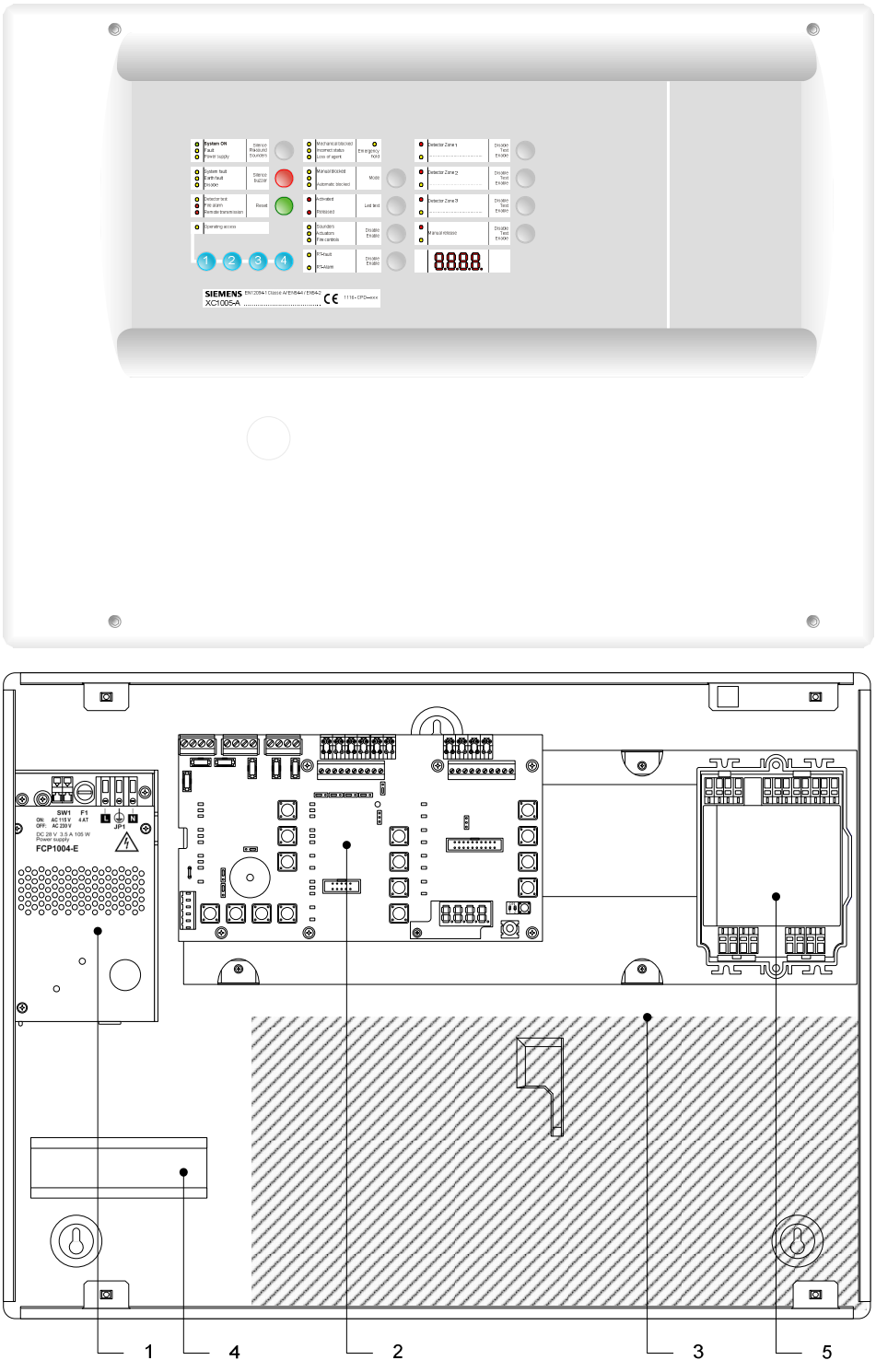


Fig. 2 XC1005-A

1 FCP1004-E power supply unit with charger
2 XCM1002 mainboard
3 17 A/h batteries
4 DIN rail for accessory mounting (Z3B171 relay module)
5 FDCI / FDCIO222 module for the connection to a fire detection system (option)

4.3 XC1003-A

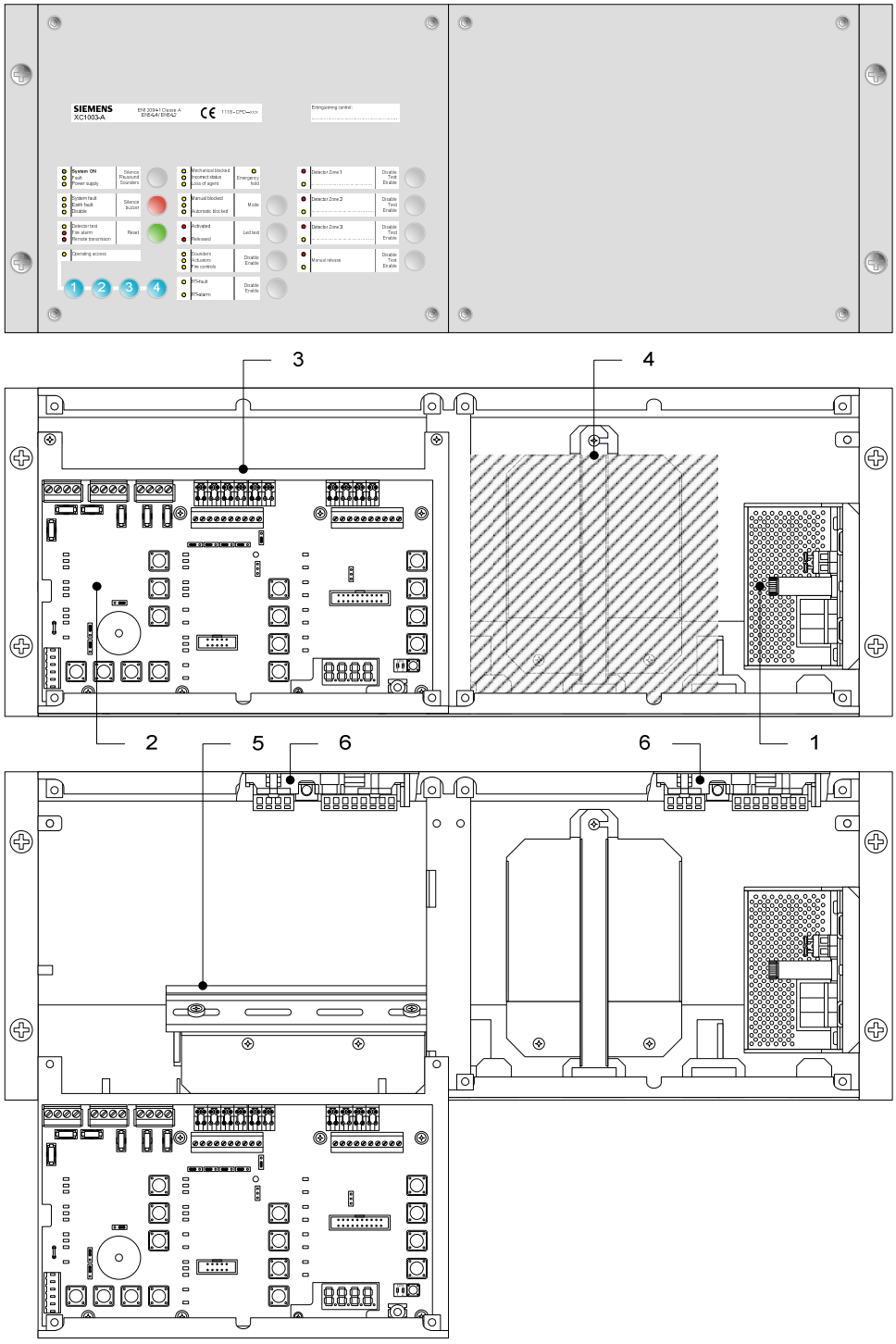


Fig. 3 XC1003-A

1 FCP1004-E power supply unit with charger
2 XCM1002 mainboard
3 Removable mainboard holder
4 4.5 A/h or 7.2 A/h batteries
5 DIN rail for accessory mounting (Z3B171 relay module, XCA1030 multi-sector modules, etc.)
6 FDCI / FDCIO222 module for the connection to a fire detection system (option)

4.4 FCP1004-E

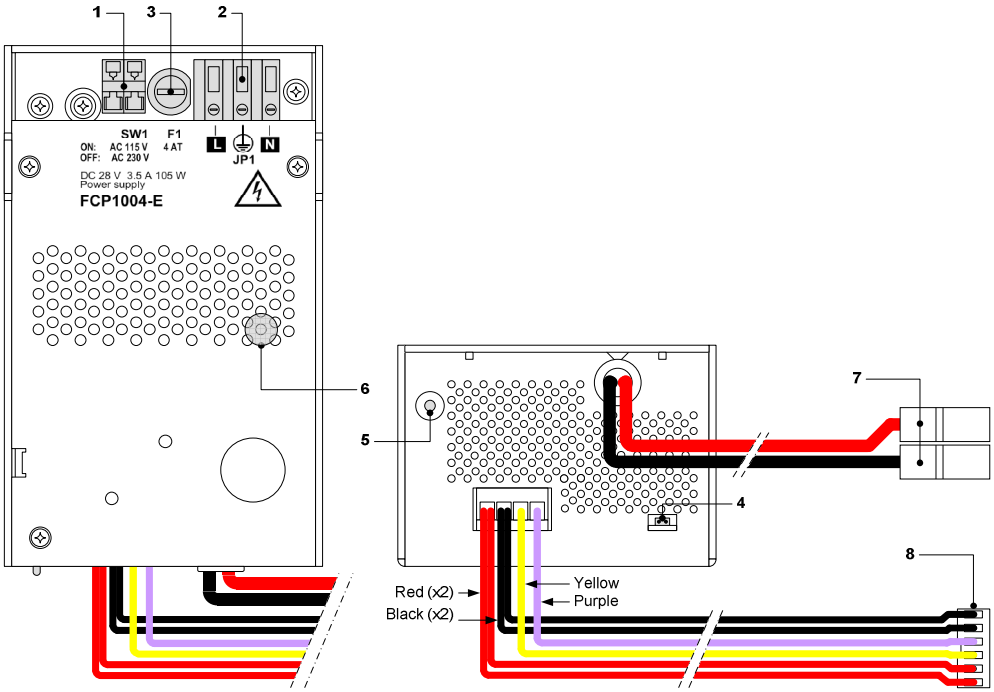


Fig. 4 FCP1004-E power supply unit

Mark	Function	Remarks
1	Mains voltage setting	Shunt ON = 115VCA, shunt OFF = 230VCA
2	Mains terminal block	
3	Mains fuse 4A / 250V	
4	System start without mains power	Shunt the 2 terminals with a jumper and remove after system start
5	Temperature sensor for battery charging voltage compensation	Do not cover
6	Internal green LED «Mains operation» but visible from the front	Not lit if no mains voltage
7	Battery connection	
8	XCM1002 main board connection	

Security level of terminal blocks 1 and 2:	Dangerous voltage
Security level of other terminal blocks:	SELV (Safety Extra Low Voltage)

4.5 XCM1002

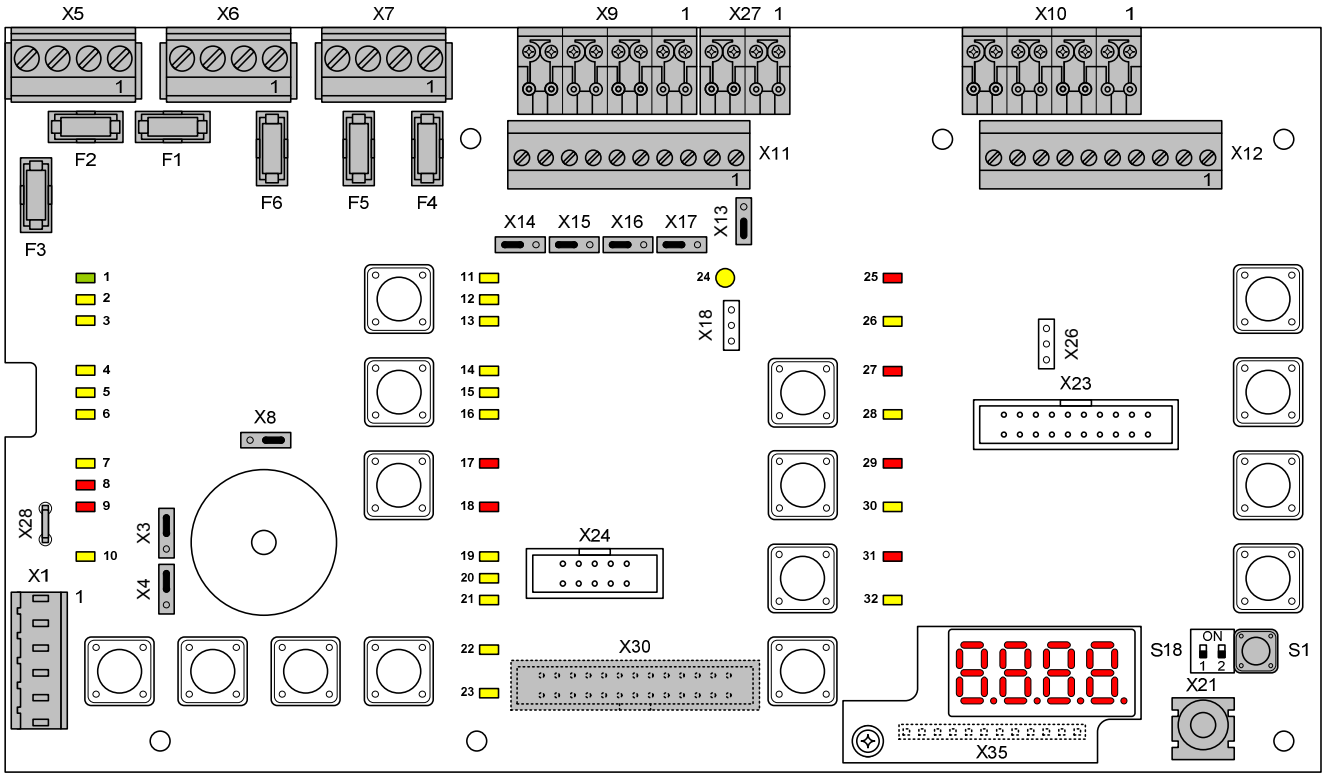


Fig. 5 XCM1002 board

Setting elements			
X3	Internal buzzer Enable/Disable		Jumper up (factory setting) : buzzer enabled Jumper down : buzzer disabled (only for servicing)
X4	Type of power supply		Jumper up (factory setting) : FCP1004-E Jumper down : do not use (for further use of external power supply)
X8	Operating access Level 2		Jumper on the right (factory setting) : Level 2 access using code Jumper on the left : Level 2 access permanent
X13	Relay contact type 1 (NO or NC)		Jumper up : NC contact Jumper down (factory setting) : NO contact
X14	Relay contact type 5 (NO or NC)		Jumper on the right : NC contact Jumper on the left (factory setting) : NO contact
X15	Relay contact type 4 (NO or NC)		Jumper on the right : NC contact Jumper on the left (factory setting) : NO contact
X16	Relay contact type 3 (NO or NC)		Jumper on the right : NC contact Jumper on the left (factory setting) : NO contact
X17	Relay contact type 2 (NO or NC)		Jumper on the right : NC contact Jumper on the left (factory setting) : NO contact
Other elements			
F1 / F2	Pluggable fuse 2 AF	Fuse for protection of control outputs 4 (F1) and 5 (F2)	
F3	Pluggable fuse 1 AF	Fuse for protection of 24V output	
F4 / F5 / F6	Pluggable fuse 1 AT	Fuse for protection of control outputs 1 (F4), 2 (F5) and 3 (F6)	
S1	Reset	—	
S18-1 / S18-2	Not used	Do not change (factory setting : OFF)	

PCB terminal blocks			
X1	Plug-in block 6 points (1.5 mm^2 max.)	1-2 (–) / 5-6 (+)	24V power supply
		3-4 (+)	Power supply monitoring
X5	Plug-in block 4 points (2.5 mm^2 max.)	1 (+) / 2 (–)	Monitored output 5
		3 (+) / 4 (–)	24V use output
X6	Plug-in block 4 points (2.5 mm^2 max.)	1 (+) / 2 (–)	Monitored output 3 (control polarities, reversed in standby)
		3 (+) / 4 (–)	Monitored output 4
X7	Plug-in block 4 points (2.5 mm^2 max.)	1 (+) / 2 (–)	Monitored output 1 (control polarities, reversed in standby)
		3 (+) / 4 (–)	Monitored output 2 (control polarities, reversed in standby)
X9	Plug-in block 8 points (1.5 mm^2 max.)	1 (+) / 2 (–)	Monitored input 1
		3 (+) / 4 (–)	Monitored input 2
		5 (+) / 6 (–)	Monitored input 3
		7 (+) / 8 (–)	Monitored input 4
X10	Plug-in block 8 points (1.5 mm^2 max.)	1 (+) / 2 (–)	Fire detectors zone 1
		3 (+) / 4 (–)	Fire detectors zone 2
		5 (+) / 6 (–)	Fire detectors zone 3
		7 (+) / 8 (–)	Extinguishing manual control
X11	Plug-in block 10 points (1.5 mm^2 max.)	1 / 2	Potential-free contact relay 1 (NO or NC)
		3 / 4	Potential-free contact relay 2 (NO or NC)
		5 / 6	Potential-free contact relay 3 (NO or NC)
		7 / 8	Potential-free contact relay 4 (NO or NC)
		9 / 10	Potential-free contact relay 5 (NO or NC)
X12	Plug-in block 10 points (1.5 mm^2 max.)	1 … 8 (–)	Logical outputs 1 to 8
		9 / 10	Not used
X21	Jack 2.5 mm	—	Maintenance PC
X27	Plug-in block 4 points (1.5 mm^2 max.)	1 (+)	Reset
		2 … 4 (+)	Unmonitored inputs 2 to 4
X28	Faston 5.3 mm	(+)	To positive of battery (to provide “Total loss of power supply” function (see note 1)
X30 (*)	Flat cable 26 points	—	Connection for multi-sector module XCA1030
X35	Terminal 12 points	—	Connection for 4 digits display
X18, 23, 24, 26	Not used	—	—

(*) on welding side

Note 1: The XC10 provides the EN54-2 option with requirement 8.4 called “Total loss of power”. This option when selected activates the system fault LED and the buzzer continuously, for at least 1 hour after a low discharge battery disconnection. The option can be selected by wiring the +BAT terminal to the positive voltage of batteries (use of remaining power after battery disconnection).

4.6 User interface

All display and control elements, except 4-digit display for XC1001-A and XC1003-A versions, are accessible to the user:

- Led 1 to 32 indicators for operating condition,
- Keys 1 to 15 allowing :
  - ➔ operating access
  - ➔ operation (reset, off, test, etc)
  - ➔ system test
  - ➔ user functions programming
- 4-digit display showing:
  - ➔ programming steps and options
  - ➔ pre-warning time count down
  - ➔ other information's (calibration states, alarm counter, etc)

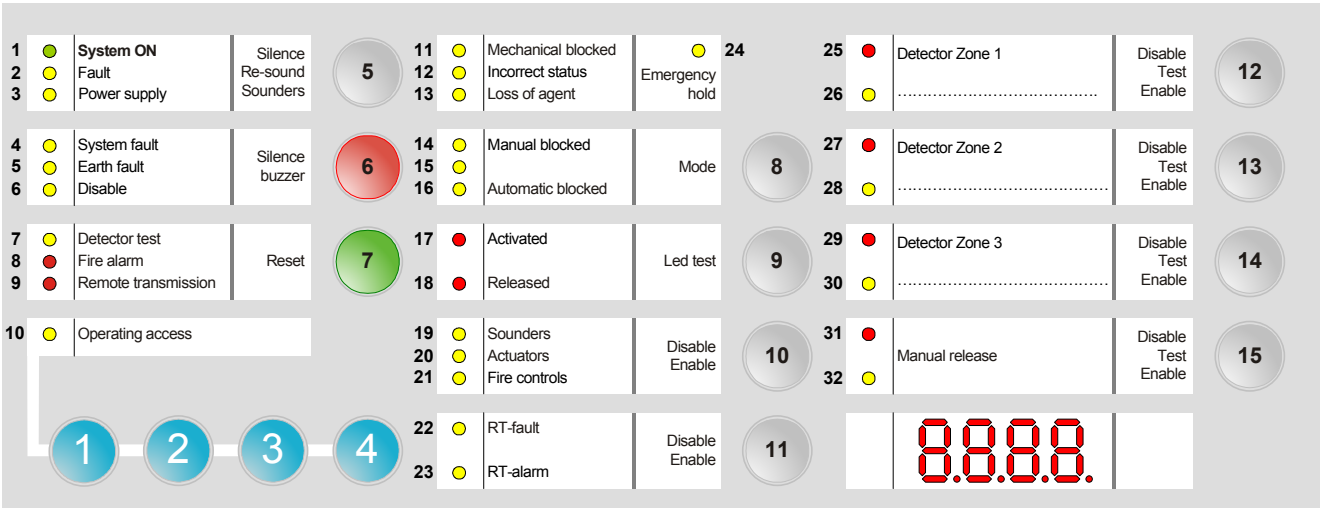


Fig. 6 XC10xx-A, user interface

Indicators		State	Description
N°	Color		
1	Green	Fixed	The control panel is in operation
2	Yellow	Fixed	The control panel is not able to function any more
		Fast	Fault on at least one component in the system (see paragraph 14.2 for the detail)
3	Yellow	Slow	Mains fault
		Fast	Batteries fault
4	Yellow	Fixed	Microprocessor fault
		Slow	Jumper buzzer (X3 - XCM1002 board) not connected (remainder)
5	Yellow	Fast	At least one component connected to the control panel is grounded
6	Yellow	Fixed	– At least one component in the system is disabled – Calibration in progress or error – Programming in progress
7	Yellow	Slow	At least one detection zone and/or extinguishing manual control is being tested
8	Red	Fixed	At least one detection zone is in alarm
9	Red	Fixed	Remote transmission activated (*)
10	Yellow	Fixed	Level 2 operating access granted
		Slow	System test activated
11	Yellow	Fixed	Mechanical blocking device is in the blocked position
12	Yellow	Fast	– Mechanical blocking device is in a wrong position – Selector valve is in a wrong position (used for multi-sector applications)
13	Yellow	Fast	Loss of agent

(*) According to programming

Indicators		State	Description
N°	**Color**		
14	Yellow	Fixed	– Manual release is blocked or being tested
15	Yellow	Fixed	– Standard = not used – Alternative = automatic and manual release granted (UK)
16	Yellow	Fixed	– Automatic release is blocked – At least one detection zone which starts the extinguishing is off or being tested
17	Red	Fixed	– All detection zones which start the extinguishing are in alarm condition – One of the electrical manual triggering device (DM1103-L) is actuated
		Fast	One of the detection zones which start the extinguishing is in alarm condition
18	Red	Fixed	Extinguishing agent is released
		Slow / Fast	Discharged contact is not activated within 30 seconds after actuators control (*)
19	Yellow	Fixed	Sounders are disabled
		Slow	Sounders test is in progress (real activation)
		Fast	At least, an output programmed as Sounders is in fault condition (break or short-circuit)
20	Yellow	Fixed	Actuators are disabled
		Slow	Actuators test is in progress (simulated activation)
		Fast	– At least, one output programmed as actuators is in fault condition (break or short-circuit) – Calibration in progress or error or no calibration data
21	Yellow	Fixed	Fire controls are disabled
		Slow	Warning panels test is in progress (real activation)
		Fast	At least, one output programmed as fire controls is in fault condition (break or short-circuit)
22	Yellow	Fixed	RT-fault is disabled
		Slow	RT-fault test is in progress (real activation)
23	Yellow	Fixed	RT-alarm is disabled
		Slow	RT-alarm test is in progress (real activation)
		Fast	At least, one output programmed as RT-alarm is in fault condition (break or short-circuit)
24	Yellow	Fixed	Emergency abort is activated
		Slow	Emergency hold is activated (DM1101-S)
		Fast	At least, one input programmed as emergency hold/abort is in fault condition (break or short-circuit)
25	Red	Fixed	Detection zone 1 is in alarm condition
		Slow	Detection zone 1 is in alarm condition (first alarm)
26	Yellow	Fixed / Slow	Detection zone 1 is disabled (fixed) / being tested (slow)
		Fast	Detection zone 1 is in fault condition (break or short-circuit)
27	Red	Fixed	Detection zone 2 is in alarm condition
		Slow	Detection zone 2 is in alarm condition (first alarm)
28	Yellow	Fixed / Slow	Detection zone 2 is disabled (fixed) / being tested (slow)
		Fast	Detection zone 2 is in fault condition (break or short-circuit)
29	Red	Fixed	Detection zone 3 is in alarm condition
		Slow	Detection zone 3 is in alarm condition (first alarm)
30	Yellow	Fixed / Slow	Detection zone 3 is disabled (fixed) / being tested (slow)
		Fast	Detection zone 3 is in fault condition (break or short-circuit)
31	Red	Fixed	Manual release is activated (DM1103-L line)
		Slow	Manual release is activated (DM1103-L line) – First alarm
32	Yellow	Fixed / Slow	Manual release is disabled (fixed) / being tested (slow)
		Fast	Manual release is in fault condition (break or short-circuit)

(*) According to programming

Keys	Description
1 … 4	Operating access code input (level 2, programming, system test, etc.)
5	Silence / Restart sounders by successive pressing: – 1st pressing: silence sounders – 2nd pressing: restart sounders – 3rd pressing: silence sounders – etc ➔ Operating access level required for this operation = level 2 (silence sounders is not possible during pre-warning time)
6	Silence buzzer ➔ Operating access level required for this operation = level 1 or 2 or 2 only (*)
7	1) Reset of the system. Reset is not possible : – during pre-warning time, emergency stop and flooding time – if buzzer and/or sounders are not silenced – if manual release button and/or discharged contact are not reset (*) ➔ Operating access level required for this operation = level 2
	2) Fault reset (*) ➔ Operating access level required for this operation = level 2
8	Mode of operating, by successive pressing: – 1st pressing: automatic blocked – 2nd pressing: automatic and manual blocked – 3rd pressing: normal mode ➔ Operating access level required for these operations = level 2
9	Led and buzzer test (duration = 6 seconds) : All led indicators are activated and the buzzer sounds continuously (during the first three seconds, all the segments of the display are activated, then the SW version is displayed) ➔ Operating access level required for this operation = level 1
10	Disable / Enable by successive pressing: – 1st pressing: actuators are disabled – 2nd pressing: sounders and actuators are disabled – 3rd pressing: fire controls are disabled – 4th pressing: all is disabled – 5th pressing: all is enabled ➔ Operating access level required for these operations = level 2
11	Disable / Enable by successive pressing: – 1st pressing: RT-fault is disabled – 2nd pressing: RT-fault is enabled / RT-alarm is disabled – 3rd pressing: RT-fault and RT-alarm are disabled – 4th pressing: all are enabled ➔ Operating access level required for these operations = level 2
12	Disable / Enable by successive pressing (not possible in case of fault or alarm): – 1st pressing: zone 1 is disabled – 2nd pressing: zone 1 is tested – 3rd pressing: zone 1 is in normal condition ➔ Operating access level required for these operations = level 2
13	Disable / Enable by successive pressing (not possible in case of fault or alarm): – 1st pressing: zone 2 is disabled – 2nd pressing: zone 2 is tested – 3rd pressing: zone 2 is in normal condition ➔ Operating access level required for these operations = level 2
14	Disable / Enable by successive pressing (not possible in case of fault or alarm): – 1st pressing: zone 3 is disabled – 2nd pressing: zone 3 is tested – 3rd pressing: zone 3 is in normal condition ➔ Operating access level required for these operations = level 2
15	Disable / Enable by successive pressing (not possible in case of fault or alarm): – 1st pressing: manual release is disabled – 2nd pressing: manual release is tested – 3rd pressing: manual release is in normal condition ➔ Operating access level required for these operations = level 2

(*) According to programming

5 Features

Power supply (FCP1004-E)	**Primary source (mains)**		
	Voltage		115 / 230 VCA +10 …-15% – 50 / 60 Hz
	Current		1.75 A max.
	Power		150 VA max.
	Secondary source (batteries)		
	Connectable batteries		2 x 12 V / 4.5 … 17 Ah
	Voltage		23.4 … 27.6 V
	Charging current max.		1.3 A (with temperature compensation)
	Internal resistance max.		1 Ω
	Deep discharge (disconnection threshold)		20 V +/-3%
	Output		
	Voltage		27.3 V +/- 0.3 V (25°C)
	Max. available current		Imax a : 2 A (batteries loading) Imax b : 3.5 A (batteries loaded)
	Min. current		0.05 A
	Power		105 W max.
	Switching frequency / Ripple		132kHz / 70 mVpp max.
XCM1002	Input voltage		22.5 … 27.6 V (25°C)
	Current consumption		190 mA max. without primary source
	I/Os security level		SELV (Safety Extra Low Voltage)
Detection lines	Type / number of detectors		Collective / 32 max. (according to detector type)
	Compatible detectors		Siemens (Algorex, Sinteso, Synova)
	End of line element (EOL)		Transzorb 18 V (P6KE18CA)
	Standby condition voltage / current		17.1 … 19.3 V (fixed by EOL) / 11 mA max.
	Alarm condition voltage / current		5.5 … 16.5 V / 11 … 57.1 mA max.
	Line resistance		80 Ω max.
Manual release line	Type / number of manual actuators		DM1103-L / 32 max.
	End of line element (EOL)		Transzorb 18 V (P6KE18CA)
	Voltage / standby line current		17.1 … 19.3 V (fixed by EOL) / 11 mA max.
	Voltage / alarm line current		5.5 … 16.5 V / 11 … 57.1 mA max.
	Line resistance		80 Ω max.
Monitored inputs	4		
	Activation resistance		680 Ω or 1.2 kΩ
	End of line element (EOL)		3.3 kΩ resistance
	Line resistance		80 Ω max.
Control inputs (non monitored)	4		Activation +24 V, via contact
Monitored control outputs **Outputs 1 to 3**	**Outputs 1 to 3**		
	Control voltage / current		24 V / 1 A max.
	End of line element		3.3 kΩ resistance
	Outputs 4 and 5		
	Control voltage / current		24 V / 2 A max.
	End of line element		No EOL (line calibration)
Driver outputs	8 (programmable)		24 V / 40 mA max.
Relay outputs (contacts)	5 (4 programmable)		30 V / 1 A max. / NO or NC
Connections	**XCM1002**		
	Inputs - outputs type / section		Plug-in screw terminal blocks 2.5 mm^2 max. (X5, X5, X7) 1.5 mm^2 max. (all others)
	FCP1004-E		
	mains input type / section		Plug-in screw terminal block / 2.5 mm^2 max.
Environmental conditions	Operating / Storage temperature		-5 ... +40 ° C / -20 ... +60 ° C
	Humidity relative at 40 ± 2 ° C		93% max., without condensation
Mechanical data	XC1001-A	Cabinet / Protection index	Metal frame with plastic cover / IP30
		Color	RAL9003 (cover), RAL9006 (user interface)
		Dimensions (l x h x p) / Weight	370 x 286 x 90 mm / 4.1 kg
	XC1005-A	Cabinet / Protection index	Metal case with plastic cover / IP40
		Color	RAL9003 (cover), RAL9006 (user interface)
		Dimensions (l x h x p) / Weight	505 / 375 / 125 mm / 6.5 kg
	XC1003-A	Cabinet / Protection index	Rack 19'' 4U / IP30
		Color	RAL9006
		Dimensions (l x h x p) / Weight	482.6 (19'') x 177.8 (4U) x 187 mm / 6.6 kg
Conformity	EN 12094-1, EN 54-2/A1, EN 54-4/A2		—

6 Installation

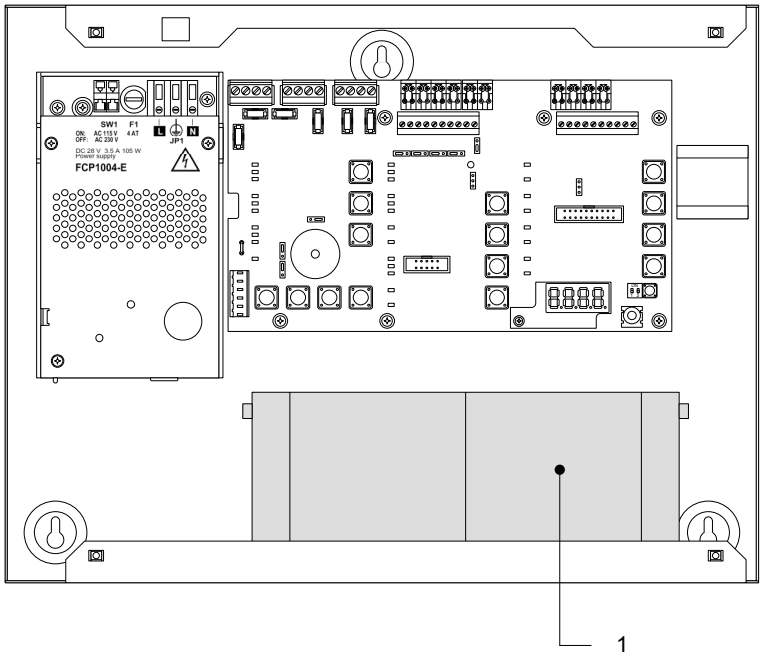
Generally, the XC10 must be easily accessible and installed:

- outside the protected area
- protected from mechanical shocks and bad weather

6.1 XC1001-A / XC1005-A

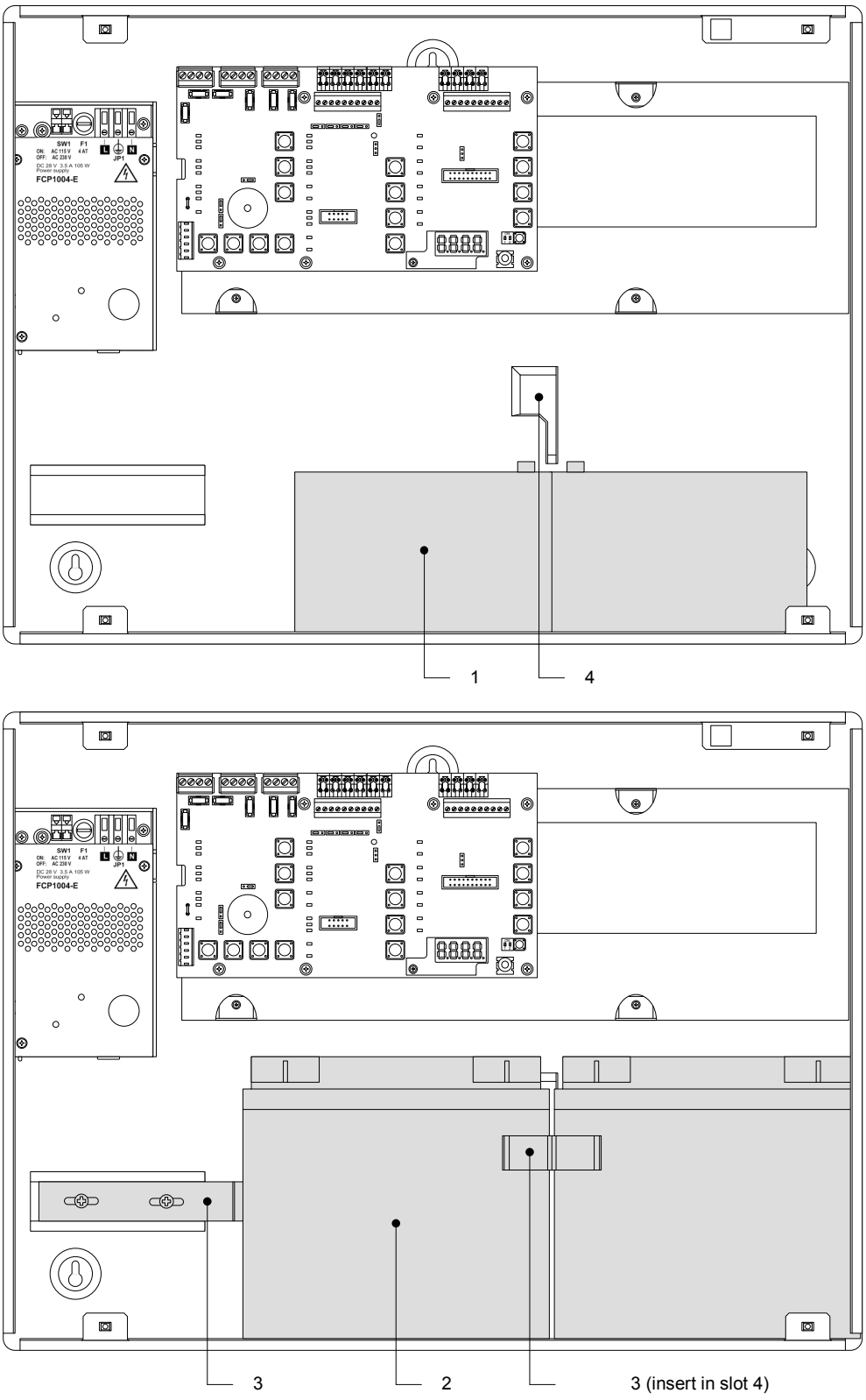
The XC10 must be installed on a fixed and stable support, with a height ranging between 1.60 m and 1.70 m (eliminate the irregularities from the mounting surface ≥ 5 mm).

1. Remove front cover
2. Mark and drill the mounting holes using the drilling template provided (start with the hole for the top central screw)
3. Fix the chassis using 3 screws Ø 4 x 50 mm (not provided)
4. Cut out the cable entries
5. Cut out the plastic housing according to the cable inputs (XC1001-A)
6. Mount the cable glands is necessary (required for protection rating IP30)
7. Install the batteries and fix the battery holders



1 12 V – 4.5 Ah batteries

Fig. 7 XC1001-A, battery installation



1 12 V – 12 Ah batteries
2 12 V – 17 Ah batteries
3 FCA1014 battery holder (option)
4 Slot for battery holder

Fig. 8 XC1005-A, battery installation

6.2 XC1003-A

Fix the XC1003-A into a 19" housing cabinet with a protection rating IP ≥ 30.

Fig. 9 XC1003-A, mounting examples

The interval between 2 extinguishing racks and there power supply rack should not exceed 12U.

XC1003-A, mounting adaptation

The 19” rack is symmetrical. This allows, with some mounting/unmounting operations, to adapt it to various configurations (2 racks minimum are necessary).

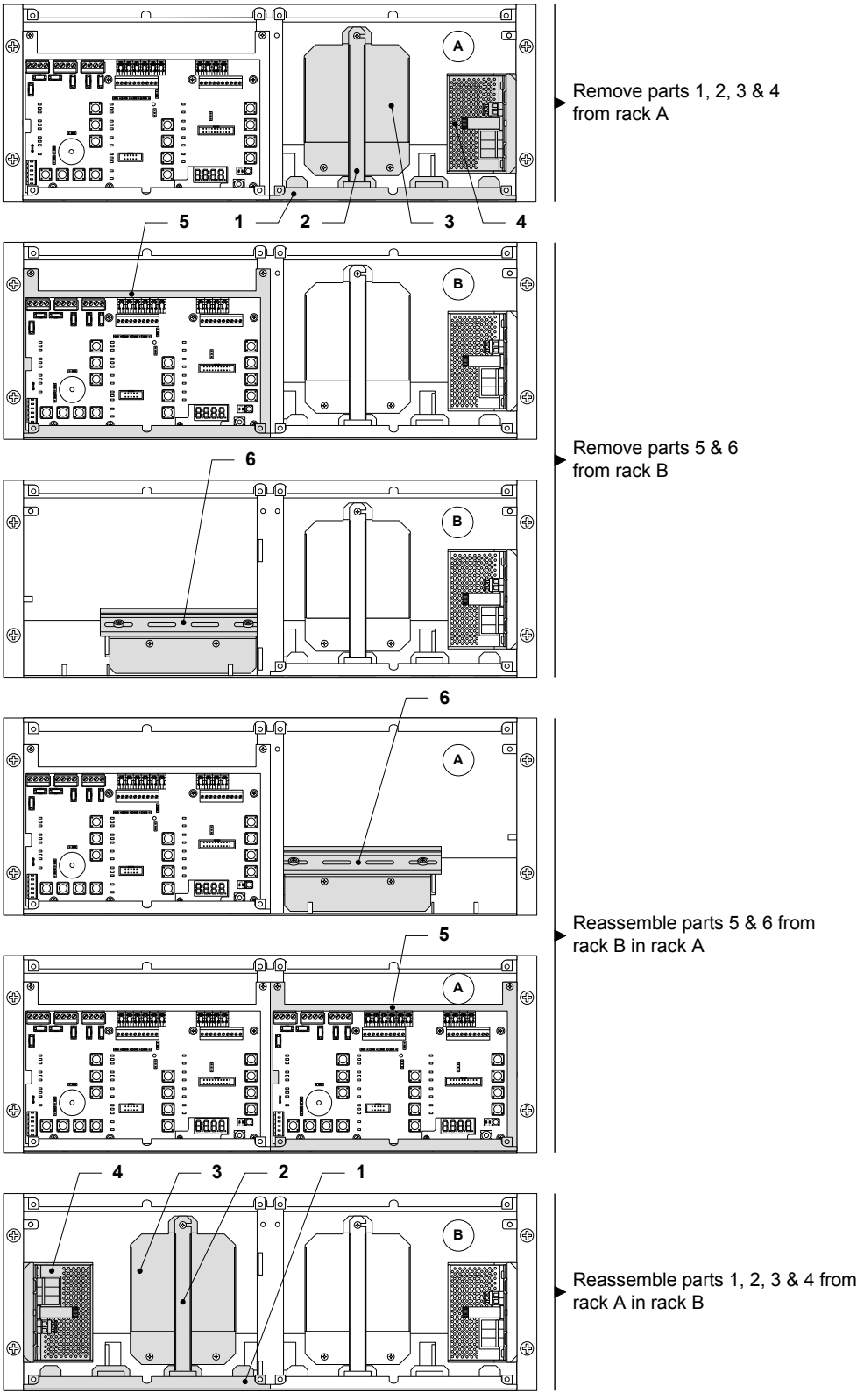


Fig. 10 XC1003-A, mounting adaptation

XC1003-A, commissioning / connection / maintenance

The removable board holder (1) can be positioned, after screw unmounting (3), as indicated below to reach the DIN rail (2).

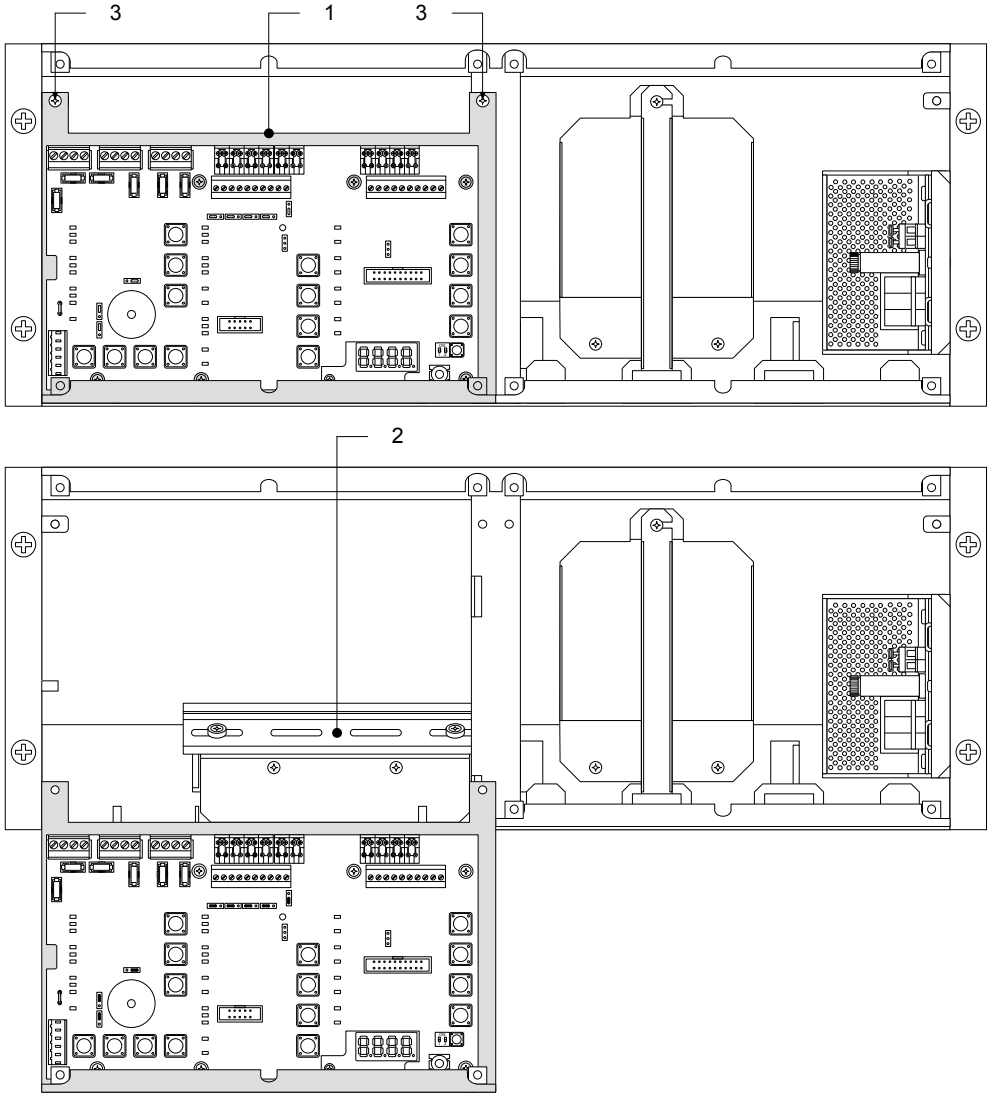


Fig. 11 XC1003-A, removable stand in “Commissioning” position

XC1003-A, batteries installation

4.5 Ah batteries:
1. Remove the holder (1)
2. Install the batteries (3) as shown below
3. Remount the holder (1)

7.2 Ah batteries:
1. Remove the parts (1) and (2)
2. Install the batteries (4) as shown below

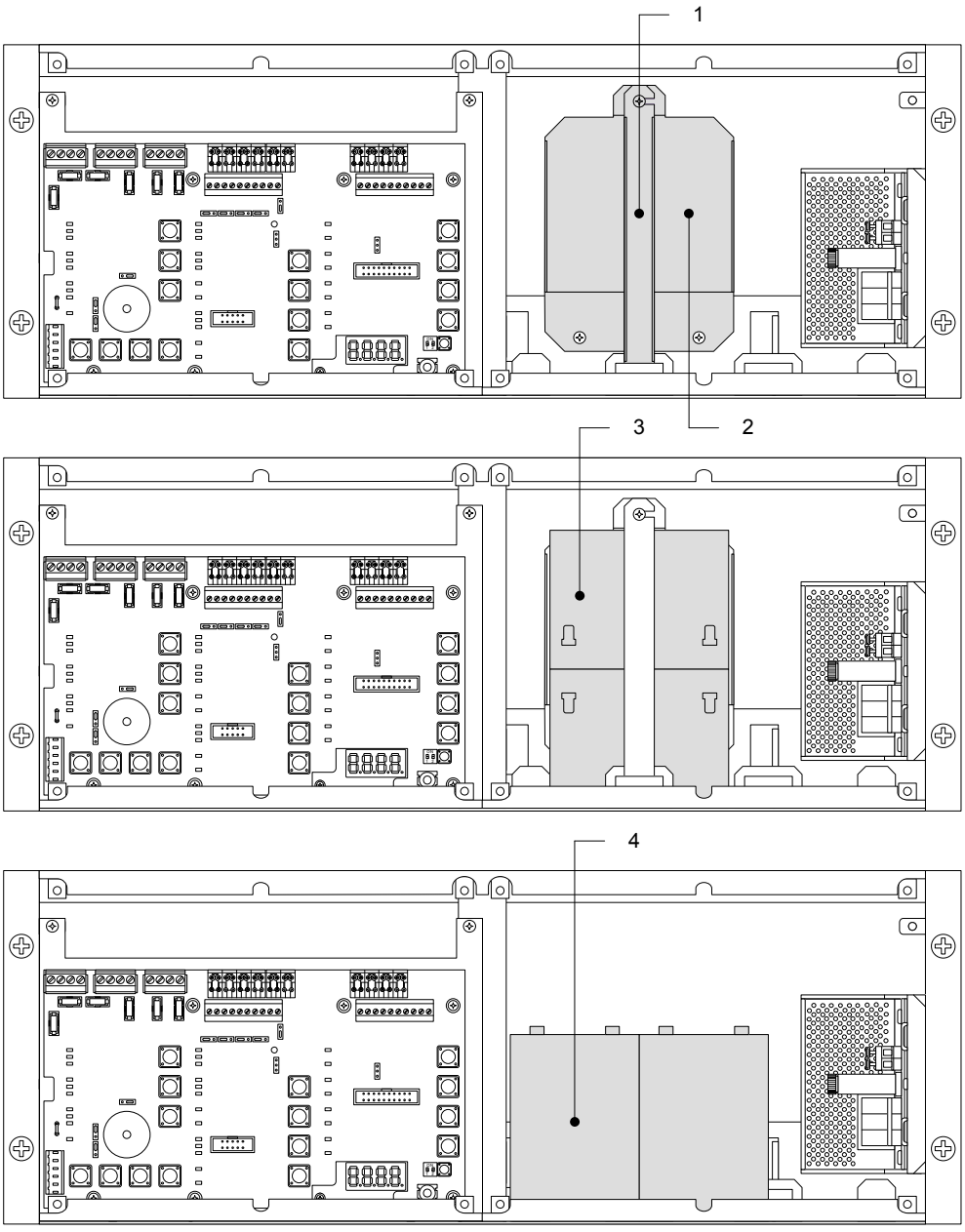


Fig. 12 XC1003-A, battery installation

6.3 User interface labels

Insert the labels following the instructions on the board provided with the equipment.

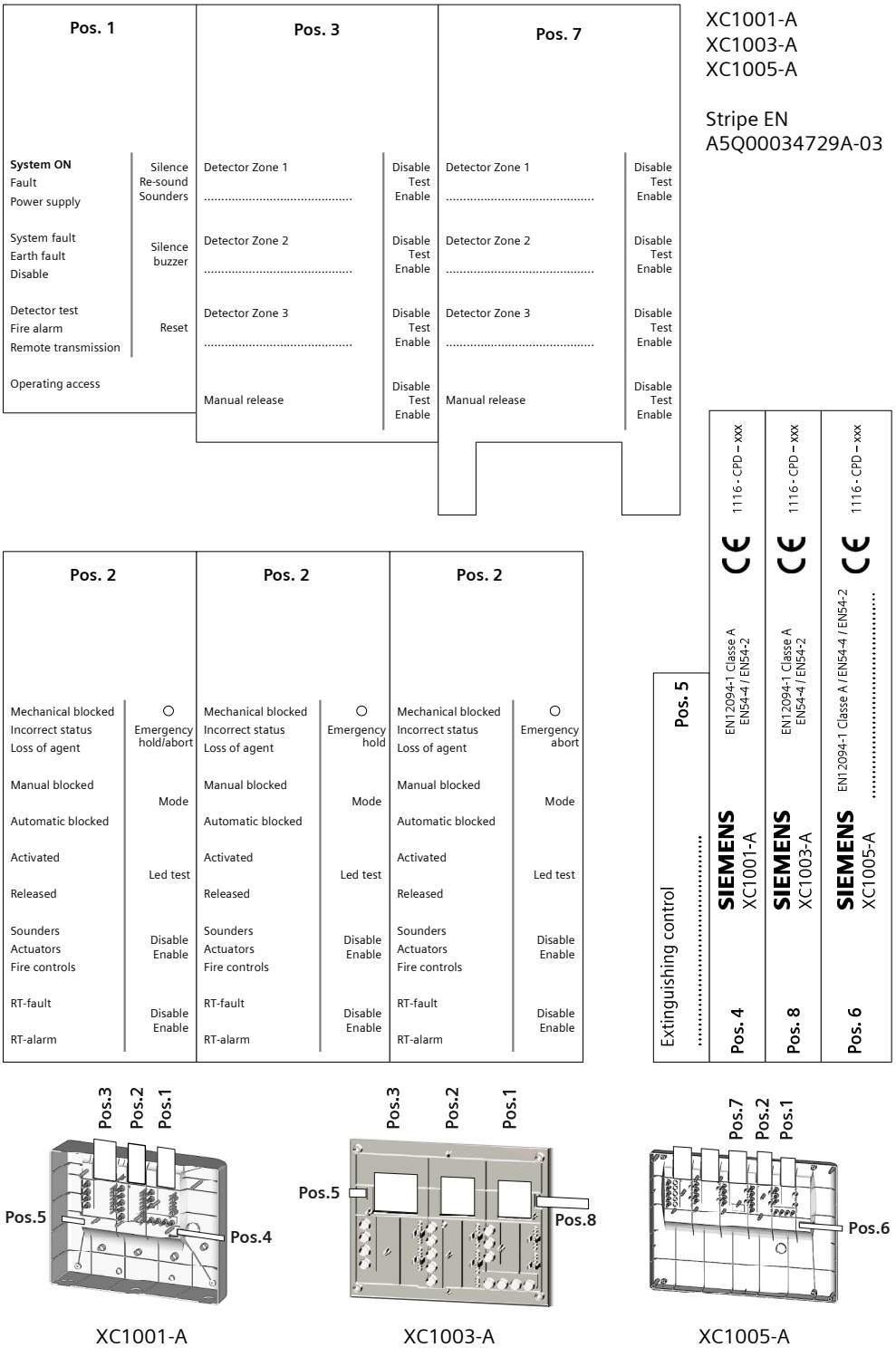


Fig. 13 XC10xx-A, user interface labels

The label to be inserted in position 2 is different whether the stop/emergency hold function is used or not.

7 Connections

The installation must be realised by qualified personnel and in conformity with the applicable national electric standard.

7.1 Mains

Connection with the mains must be established through an external circuit breaker (bipolar circuit breaker 1 A).

1. Make sure that the mains voltage is switched off
2. Connect the mains cable to the PSU terminals according to the pin assignment specified onto the PSU:
   – Protection ground (⏚), neutral (N) and phase (L)
3. Fix the cable with two fasteners and check, during installation, that these fixings are well in place

The XC10xx-A equipment is not designed to be connected according to an IT earth network.
If such a network must be used, a separation transformer will have to be installed.

Danger - Electrical voltage
Mortal danger due to electric shock
- Before laying the mains cable, make sure that it is not connected to the power supply.
- Check to make sure that the mains are secured against inadvertently being switched on.

Danger - Short circuit
Potential damage to hardware
- Before installing or dismantling the power supply unit, remove the wire jumper between the two batteries.
- This ensures that the secondary side is current-free and that no modules can be damaged due to a short circuit.

7.2 Batteries

Two 12 V batteries, connected in series, can be connected with the FCP1004-E power supply. According to the versions, the following batteries can be installed:

- XC1001-A : 4.5 Ah
- XC1005-A : 12 Ah or 17 Ah
- XC1003-A : 4.5 Ah or 7.2 Ah

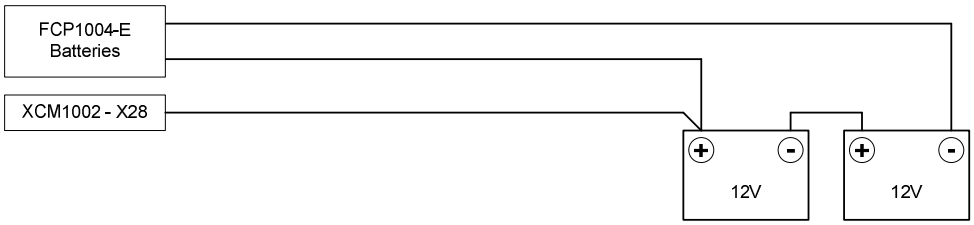


Fig. 14 Battery connection

In some countries i.e. [FR], it is necessary to indicate the total loss of power supply (option with requirement EN54-2). In such case, connect the wire provided between + of the batteries and the X28 terminal of XCM1002 mainboard.

7.3 Fire detectors/Manual release control buttons

Four monitored inputs are available on the X10 terminal block for the connection of fire detectors or alarm contact (i.e. contact from FDCIO222) and electrical manual triggering devices (DM1103-L)

- Detection zones 1 to 3 operation is defined at programming steps 52 to 55 (see paragraph 12.14)
- Extinguishing manual release control operation does not require programming. Up to 32 buttons DM1103-L can be connected

Technical data common to the 4 inputs
EOL: transzorb 18V connected at the end of the line
Line resistance max.: 80 Ω

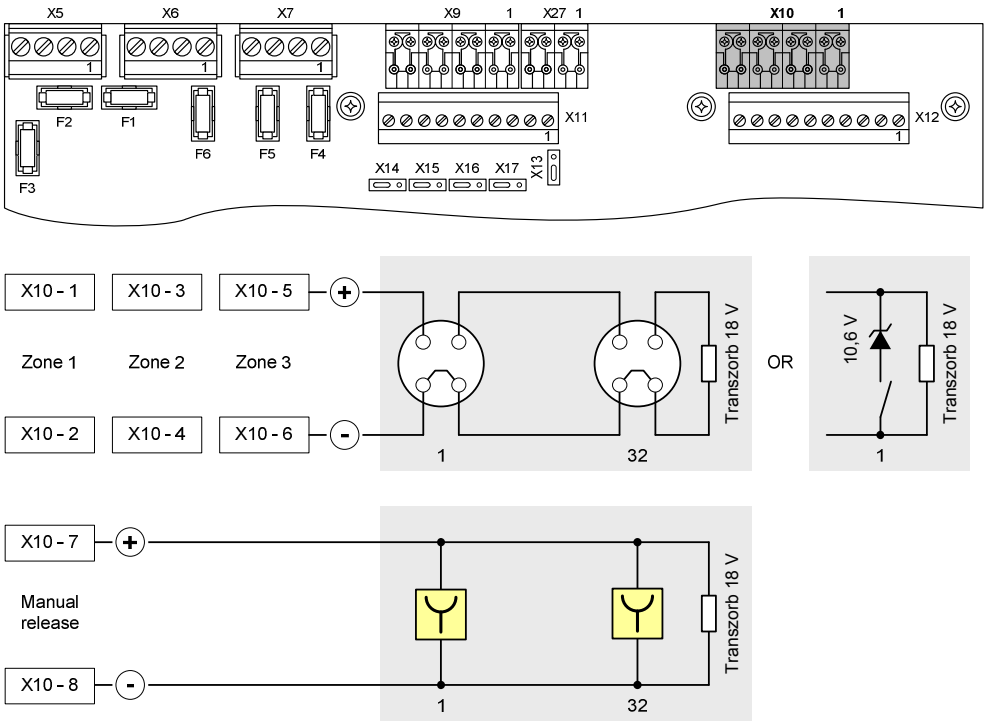


Fig. 15 XC10xx-A, connection of detectors and manual triggering devices

The number of detectors which can be connected is determined by dividing the collective system line connection factor (KLK = 32) by the collective element load factor (KMK = see table below).

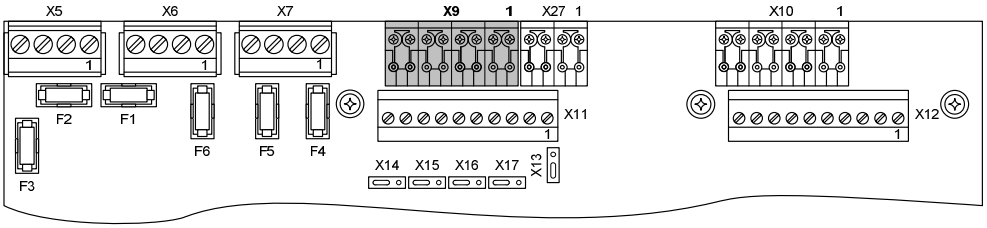
Series of detectors	Designation	KMK	Nb
ALGOREX	DO1101A / DO1102A / DO1104A	1	32
	DT1101A / DT1102A	1	32
	DF1191 / DF1192	6	5
SINTESO	FDOOT241-9	2 … 1.25 (*)	16 … 25
	FDF221-9 / FDF241-9	5	6
	FDL241-9	10	3
SYNOVA	OP320C / OH320C	1	32
	HI320C / HI322C	1	32

(*) Depends on detector index and set of parameters

For Sinteso detectors, select an appropriate set of parameters.

7.4 Monitored inputs

Four monitored inputs are available on X9 terminal block for the connection of various devices. Operation is defined at programming steps 28 to 31 (see paragraph 12.9).



Technical data common to the 4 inputs
EOL: 3.3 kΩ resistance connected at the end of the line
Line resistance max.: 80 Ω

7.4.1 Monitored input 1

This input is exclusively reserved for the connection of the extinguishing discharged contact. Operation is defined at programming step 28.

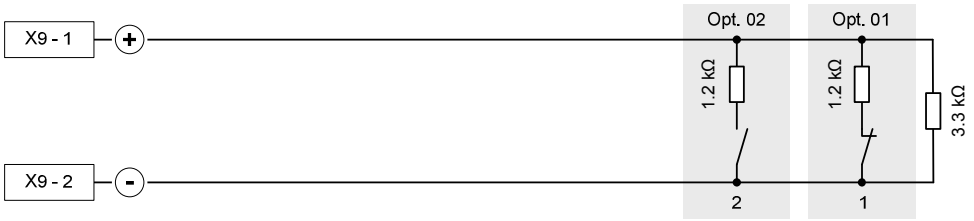


Fig. 16 XC10xx-A, monitored input 1 connection

1 Discharged contact normally closed (NC)
2 Discharged contact normally open (NO)

7.4.2 Monitored input 2

This input is exclusively reserved for the connection of the loss of agent devices (manometer or weighing device). Operation is defined at programming step 29.

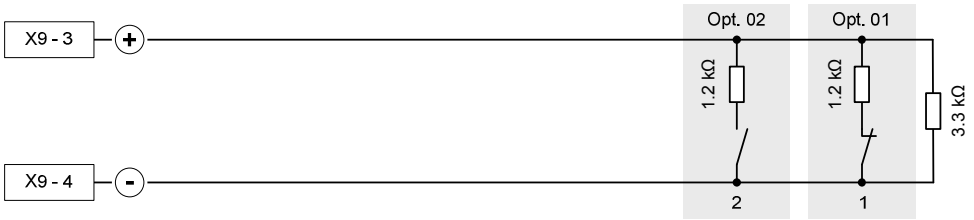


Fig. 17 XC10xx-A, monitored input 2 connection

1 Loss of agent contact normally closed (NC)
2 Loss of agent contact normally open (NO)

7.4.3 Monitored input 3

This input can be used for several purposes. Operation is defined at programming step 30.

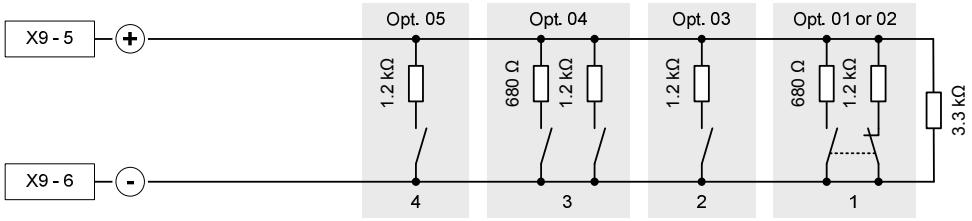


Fig. 18 XC10xx-A, monitored input 3 connection

1 Mechanical blocking device
2 Extinguishing remote activation
3 Automatic blocked / Manual blocked / Automatic and manual blocked
4 Emergency abort

7.4.4 Monitored input 4

This input can be used for several purposes. Operation is defined at programming step 31.

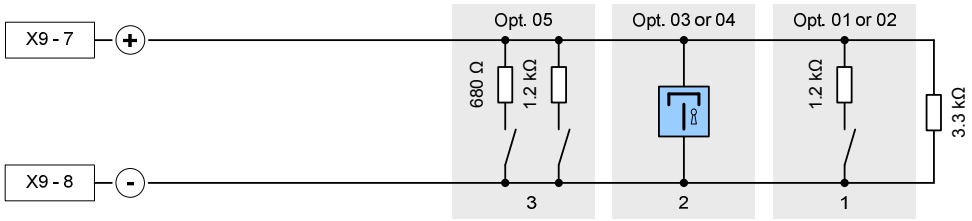


Fig. 19 XC10xx-A, monitored input 4 connection

1 Emergency abort
2 Emergency hold
3 Automatic blocked / Manual blocked / Automatic and manual blocked

When monitored inputs 3 and 4 are programmed respectively as « Emergency hold » and « Emergency abort », emergency abort have priority

7.5 Control inputs

Four control inputs, including three programmable (2 to 4), are available on X27 terminal block to receive controls or information via relay contacts. Operation is defined at programming steps 48 to 51 (see paragraph 12.13).

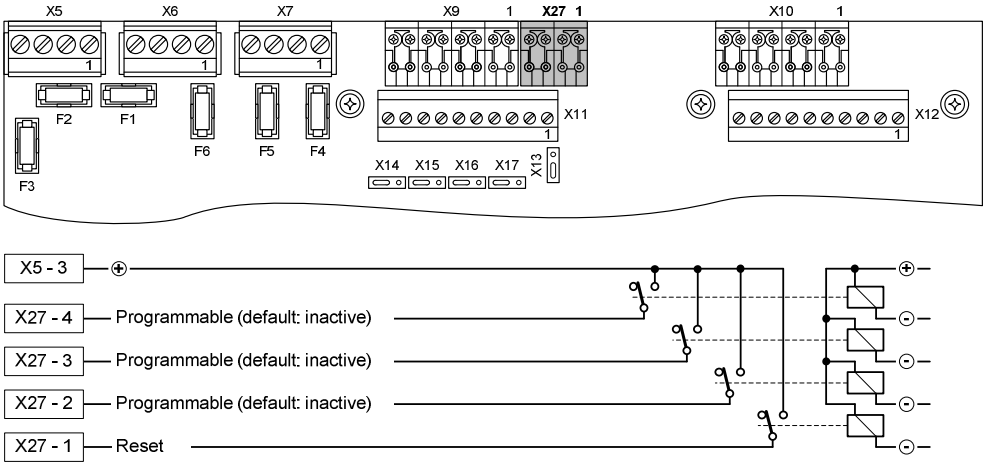
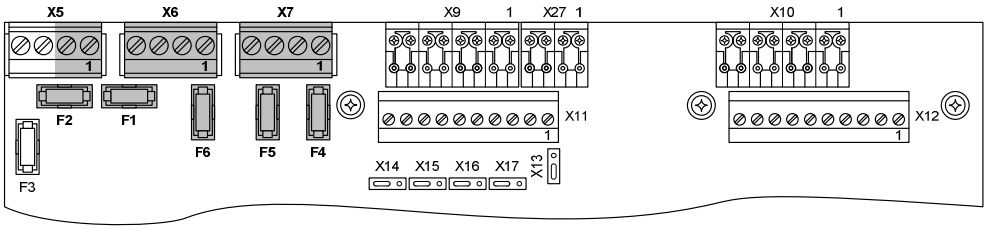


Fig. 20 XC10xx-A, control inputs connection

- These inputs shall not be activated by an external +24 V
- The relays must be installed inside the equipment
- When a control input is programmed as « Reset » or « Level 2 access » or « Manual blocked » or « Automatic blocked » or « Automatic and manual blocked » or « Silence / Restart Sounders », theses controls must only be possible through an operating level 2 access device.

7.6 Monitored control outputs

Five monitored control outputs are available on terminal blocks X7, X6 and X5 for the connection of various devices.



Technical data for control outputs 1 to 3

- activation by reverse polarity (polarities indicated are “activated” polarities, according to connected device, a diode can be necessary)
- line monitoring: 3.3 kΩ resistance connected at the end of the line
- protection: 1 AT fuse (F4 / F5 / F6)

Technical data for control outputs 4 and 5

- activation polarity is not reversed
- line monitoring: by calibration, within a range between 1 and 900 Ω
- protection: 2 AF fuse (F1 / F2)

Technical data common to the 5 control outputs

The maximum number of devices per output is determined by calculation, in 2 steps (see example below), depending on:

- minimum/maximum XC10 operating voltage = 22.5 V / 27.6 V
- nominal current consumption per device (@24V, see device technical data’s)
- minimum device operating voltage (see device technical data’s)
- protection fuse rating = 1 A or 2 A
- cable resistance (2x1.5 mm2 = 24.2 Ω / km, 2x2.5 mm2 = 14.8 Ω / km)

Calculation example for a device consuming 0.35 A at 24 V and having a minimum operating voltage of 17 V:

1. From maximum system voltage ($V_{SYS\ MAX}$) in order to make sure that device consumption does not exceed fuse rating.

- Device current consumption at $V_{SYS\ MAX}$ = (27.6 x 0.35) ÷ 24 = 0.402 A
- Maximum number of devices: 0.402 A x n ≤ 1 A or 2 A
  => n ≤ 1 ÷ 0.402 ≤ 2.48, i.e. 2 devices (outputs 1 to 3)
  => n ≤ 2 ÷ 0.402 ≤ 4.96, i.e. 4 devices (outputs 4 and 5)

2. From minimum system voltage ($V_{SYS\ MIN}$) in order to make sure, that in spite of the cable resistance voltage drop, device minimum operation voltage is respected:

- Device consumption at $V_{SYS\ MIN}$ = (17 x 0.35) ÷ 24 = 0.248 A
- Maximum voltage drop = 22.5 - 17 = 5.5 V
- Maximum line resistance (outputs 1 to 3) = 5.5 ÷ (0.248 x 2) = 11.08 Ω
- Maximum line resistance (outputs 4 and 5) = 5.5 ÷ (0.248 x 4) = 5.54 Ω
- Maximum line length (1.5 mm^2) = (11.08 x 1000) ÷ 24.2 = 456 meters (outputs 1 to 3), = (5.54 x 1000) ÷ 24.2 = 228 meters (outputs 4 and 5)
- Maximum line length (2.5 mm^2) = (11.08 x 1000) ÷ 14.8 = 748 meters (outputs 1 to 3), = (5.54 x 1000) ÷ 14.8 = 374 meters (outputs 4 and 5)

7.6.1 Monitored control output 1

This output is exclusively reserved for the connection of the Sounders. Operation is defined at programming step 05 (see paragraph 12.4).

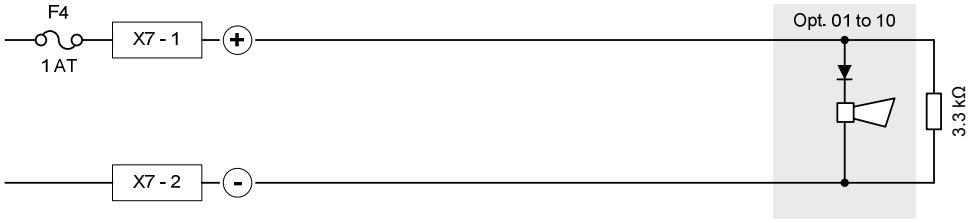


Fig. 21 XC10xx-A, monitored control output 1 connection

7.6.2 Monitored control output 2

This output can be used for several purposes. Operation is defined at programming step 11 (see paragraph 12.6).

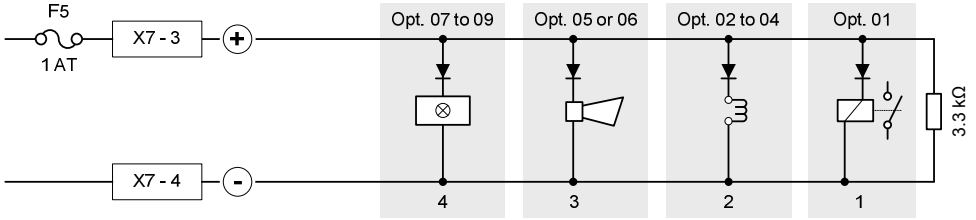


Fig. 22 XC10xx-A, monitored control output 2 connection

1 RT-alarm
2 Fire control(s): signal triggering to equipment outside the system, according to EN12094-1 option with requirements 4.26
3 Sounder(s)
4 Warning panel(s) « Mechanical blocked » or « Automatic or manual blocked » or « Automatic and manual blocked »

7.6.3 Monitored control output 3

This output is exclusively reserved for the connection of the warning panels. Operation is defined at programming step 12 (see paragraph 12.6).

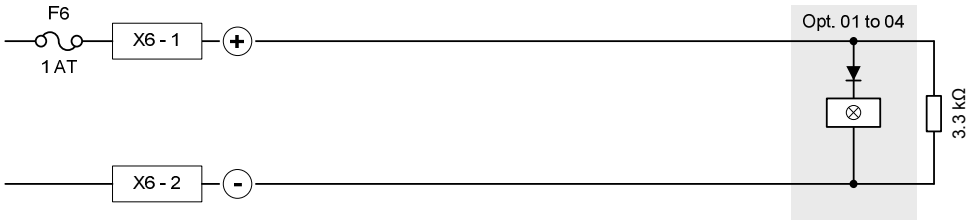


Fig. 23 XC10xx-A, monitored control output 3 connection

7.6.4 Monitored control output 4

This output is exclusively reserved for the connection of the actuator release. These devices can be either electromagnetic or pyrotechnic actuators. Operation is defined at programming steps 02 and 13 (see paragraphs 12.3 and 12.6).

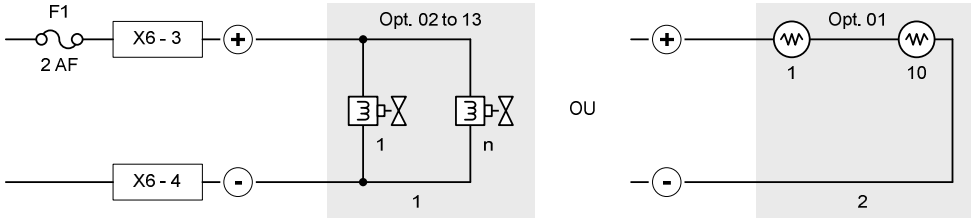


Fig. 24 XC10xx-A, monitored control output 4 connection

1 Electromagnetic actuators
2 Pyrotechnic actuators

Electromagnetic actuators

- One or more actuators, connected in parallel, can be connected (see example at paragraph 7.6 to calculate the maximum number of devices per line as well as maximum line length).

Pyrotechnic actuators

- 1 to 10 actuators maximum, connected in series, can be connected.
- The table below indicates max. line lengths, in meters, according to cable section for the Siemens Monopist pyrotechnic actuator :

	MONOPIST / code A6E60200462									
	1	2	3	4	5	6	7	8	9	10
1.5 mm^2	1067	972	877	782	687	592	497	402	307	212
2.5 mm^2	1745	1590	1434	1279	1123	968	813	657	502	346

Option 01 at step 02 must be imperatively selected in case of pyrotechnic actuator and not be selected in case of electromagnetic actuator.

7.6.5 Monitored control output 5

This output can be used for several purposes. Operation is defined at programming steps 03 and 14 (see paragraphs 12.3 and 12.6).

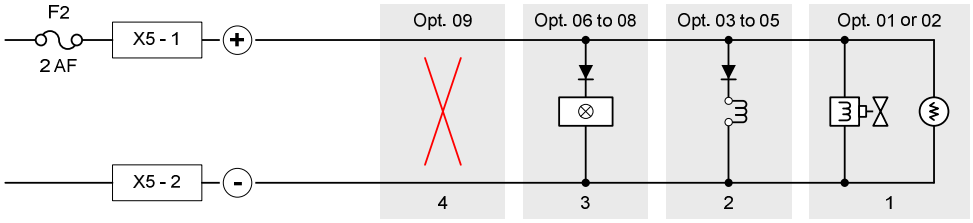


Fig. 25 XC10xx-A, monitored control output 5 connection

1 Actuators (electromagnetic or pyrotechnic)
2 Fire control(s): signal triggering to equipment outside the system according to EN12094-1 option with requirements 4.26
3 Warning panel(s) « Mechanical blocked » or « Automatic or manual blocked » or « Automatic and manual blocked »
4 Output not used

If this output is used to connect actuators, characteristics of the monitored output 4 (line length, programming options, etc.) apply.

7.7 Programmable outputs

An output, among those described in this chapter, must obligatorily be programmed to transmit the following information's:

- « Emission » (in all cases)
- « Mechanical blocking » (1)
- « Emergency hold/abort » (1)
- « Automatic blocked » (1)

(1) When these options with requirements are used.

7.7.1 Driver outputs

Eight programmable drivers outputs (non-monitored), are available on X12 terminal block. Operation is defined at programming steps 20 to 27 (see paragraph 12.8).

Technical data
Open collector type 24 Vcc – 40mA max.

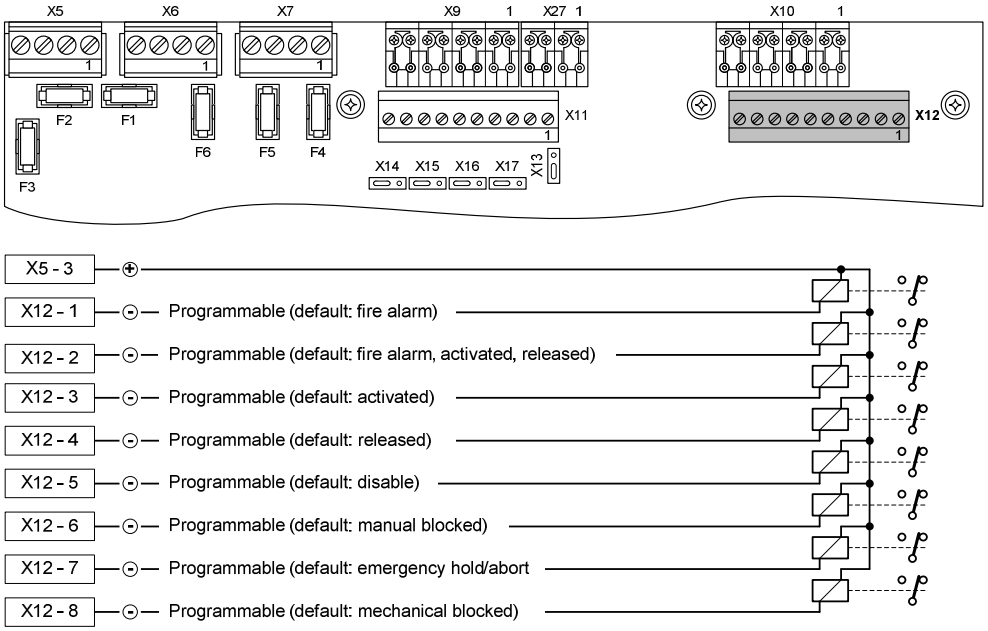


Fig. 26 XC10xx-A, driver outputs connection

Theses outputs are normally used to control external relays like Z3B171, for example:

- Shutting down the ventilation system
- Closing the extinguishing area doors
- Closing the fire dampers
- Status information's

All relays must be installed inside the control unit.

7.7.2 Relay outputs

Five potential-free contacts, including 4 programmable (1, 2, 4 and 5), are available on X11 terminal block to forward the event states to a remote transmission device or to a fire detection system. Operation is defined at programming steps 15 to 19 (see paragraph 12.7). X13 and X17 jumpers make it possible to use either the NO or NC contact.

Technical data
Contact breaking rating: 30V – 1 A (resistive circuit)

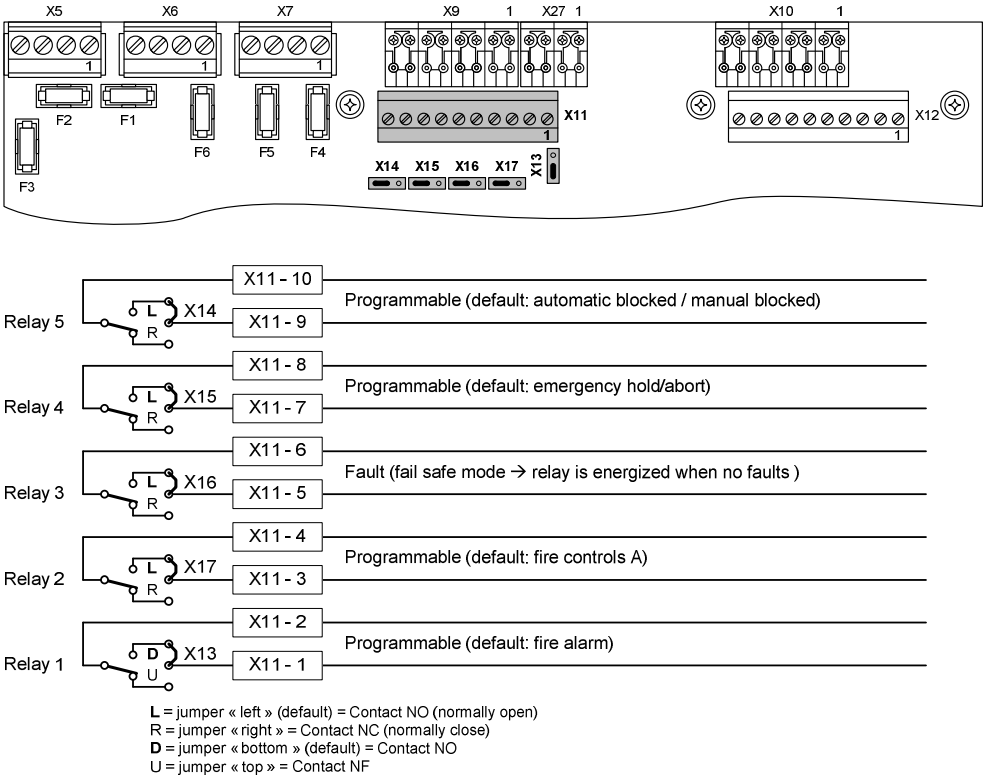
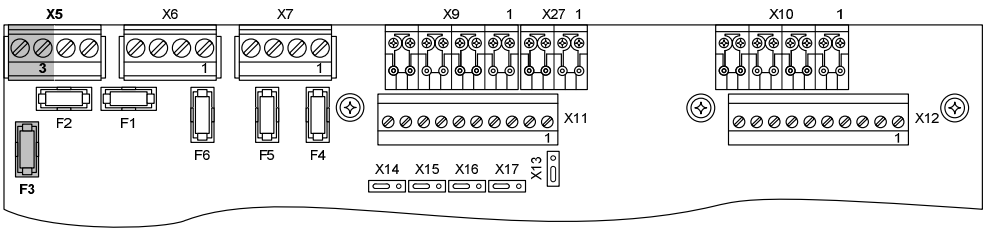


Fig. 27 XC10xx-A, relay outputs connection

7.8 24V power supply output

A 24V power supply output, protected by fuse 1 AT (F3), is available on terminal block X5-3 (+) / X5-4 (-) to power various devices (internal or external).



When the fuse F3 is blown, a general fault indication is displayed (see paragraph 14.2 for details).

8 Multi-sector installation

Multi-sector extinguishing systems are capable of protecting several flooding zones. The basic setup consists of one common cylinder bank. To this cylinder bank, a piping network is connected to every flooding zone by means of selector valves. By opening the relevant selector valve, the extinguishing agent is guided to the desired flooding area.

Up to 16 extinguishing panels (XC1003-A exclusively) can be inter-connected via there individual modules (XCA1030) to a common module (XCA1031). This application and its operation are defined at programming step 58.

8.1 Operating principle

8.1.1 Example

Each extinguishing control panel controls everything from one flooding zone. Panels are networked so that information's can be exchanged from one panel to the other.

As soon as an extinguishing control panel is activated (either automatically or manually), the common pilot cylinder is released. Then, the corresponding sector valve is opened and the number of cylinders which correspond to the flooding zone is released.

After having released the extinguishing in one flooding zone, the automatic release of other flooding zones can be automatically blocked in order to keep the concentration in the first flooding zone or to prevent unwanted fire detection in the others.

All connected devices are monitored like the single-sector application. In addition, the common cylinder loss of agent information is reported to all linked panels.

The following example describes the operation of a typical multi-zone installation on the basis of the assumption that the flooding zone 2 is activated. At the end of pre-warning time:

1) The electro-valve (EV) of flooding zone 2 is started
2) The monitored output 1 of module XCA1030 is activated and, via the C line, transmits the tripping datum to module XCA1031
3) On receipt of this information, module XCA1031:
   - starts, via output B, the master cylinder which pneumatically opens the directional valve (VD) of zone 2 and releases cylinders 1, 2 and 3
   - blocks, via output D, the actuator output of the other flooding zones, according to EN12094-1 option with requirements 4.29

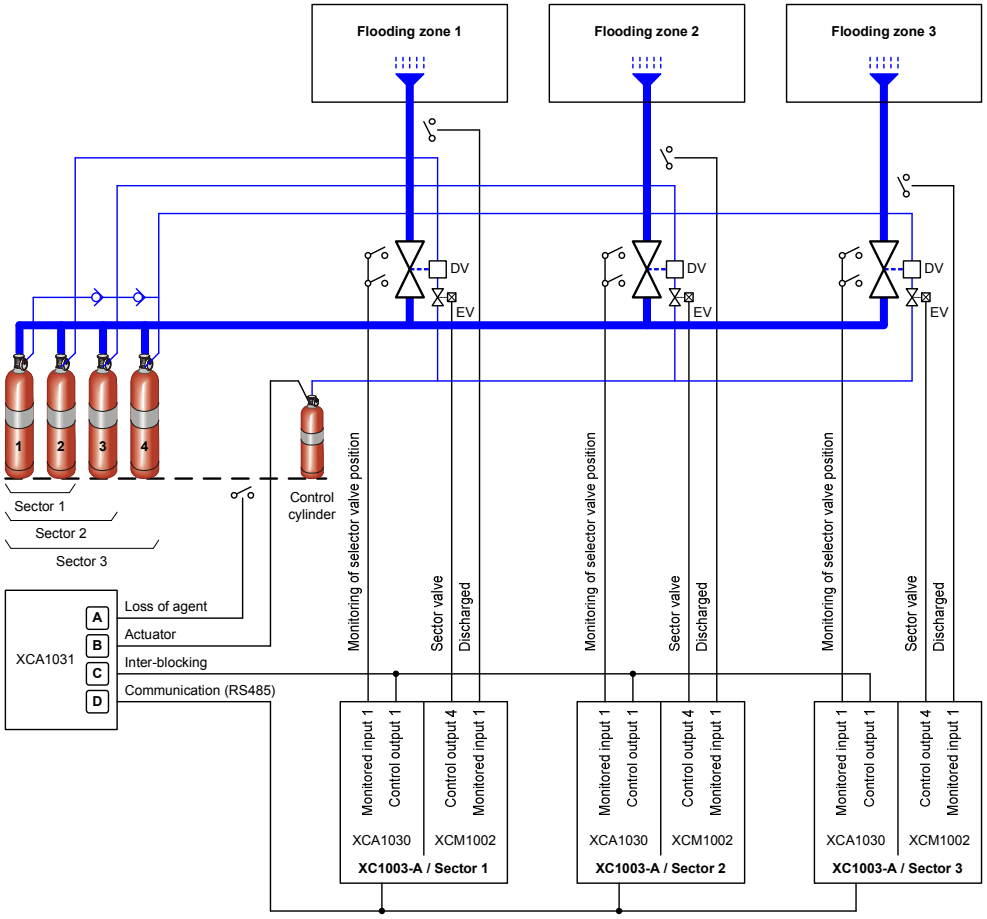


Fig. 28 XC1003-A, typical multi-sector installation

8.1.2 XCA1031 common module description

All inputs/outputs, except output D, are monitored by the module itself. The power supply is provided by the first and the last XC1003-A control unit.

Input A:
- used to connect the “loss of agent” monitoring devices (manometers, weighing device) from the main cylinder bank as well as from the pilot cylinder
- « Loss of agent » information as well as electrical fault (break or short circuit) on the line is forwarded, via output D, to all the extinguishing control panels in order to display « Loss of agent » or « General fault » (line fault)

Output B:
- used to connect the control cylinder actuator
- redundant so that an electrical fault (break or short circuit) on one line doesn’t affect any extinguishing process
- controlled by reverse polarity lines
- electrical faults (break or short circuit) are forwarded, via output D, to all the extinguishing control panels in order to display « Actuators fault »

Input C:
- receives the information that at least, one extinguishing control panel in the network is activated
- on receipt, the module transmits, via output D, the blocking information to all the extinguishing control panels in order to display « Actuators disabled »

- electrical faults (break or short circuit) are forwarded, via output D, to all the extinguishing control panels in order to display « Actuators fault »

Output D:
- forwards to all extinguishing control panels the following information:
  ➔ loss of agent
  ➔ short circuit or break of “Loss of agent” line
  ➔ multi-sector inter blocking
  ➔ short circuit or break of the actuator redundant line
  ➔ earth fault
- monitoring is ensured by each extinguishing control panel

8.1.3 XCA1030 Individual module description

This module is connected to the XC1003-A mainboard XCM1002. Each extinguishing panel which is included in a multi-sector application must be equipped with this module.

Selector valve input:
- controls, via a monitored line, the position of the selector valve (if the selector valve includes position switches)
- selector valve position or line fault is indicated on the extinguishing control panel where the valve is connected and causes the display of « Incorrect status » (position fault) or « General fault » (line fault)

Blocking output:
- send the “Inter blocking” information to the XCA1031 module
- for multi-sectors applications where the inter blocking function is not required, this function can be disabled with programming

Flooding zones activation (output):
- transmits the activation of any extinguishing control panel to the module XCA1031
- use is optional

– See paragraph 14.2 for detailed display of faults and states related to multi-sector application.
– See paragraph 8.3 for assembly and connection details.

8.2 Multiple flooding zones modules overview

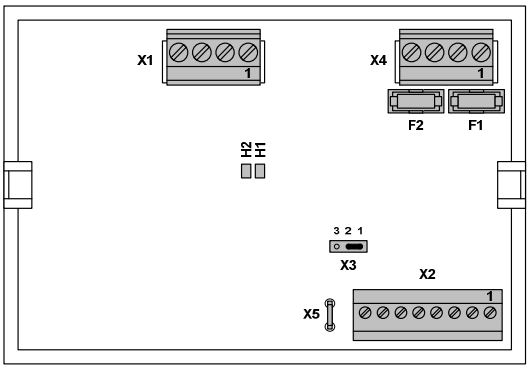


Fig. 29 XCA1031, multiple flooding zones common module

Mark	Terminals	Function
X1	1 (+) / 2 (–)	24 V power supply input N° 1
	3 (+) / 4 (–)	24 V power supply input N° 2
X2	1 (–) / 2 (+)	Extinguishing agent monitoring
	3 (–) / 4 (+)	Inter blocking
	5 (–) / 7 (+)	RS485 bus
	6 (–) / 8 (+)	
X3	—	RS485 bus configuration jumper (see paragraph 8.3)
X4	1 (+) / 2 (–)	Actuator 1 (indicated polarities are control polarities)
	3 (+) / 4 (–)	Actuator 2 (indicated polarities are control polarities)
X5	—	Ground connection
H1 / H2	—	24V power supply indications (H1: power supply input 1, H2: power supply input 2)
F1 / F2	—	1 AF fuse protection for actuator lines 1 (F1) and 2 (F2)

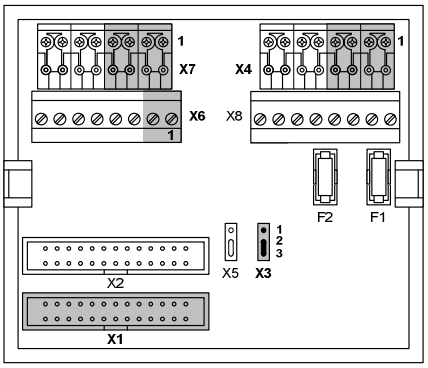


Fig. 30 XCA1030, multiple flooding zones individual module

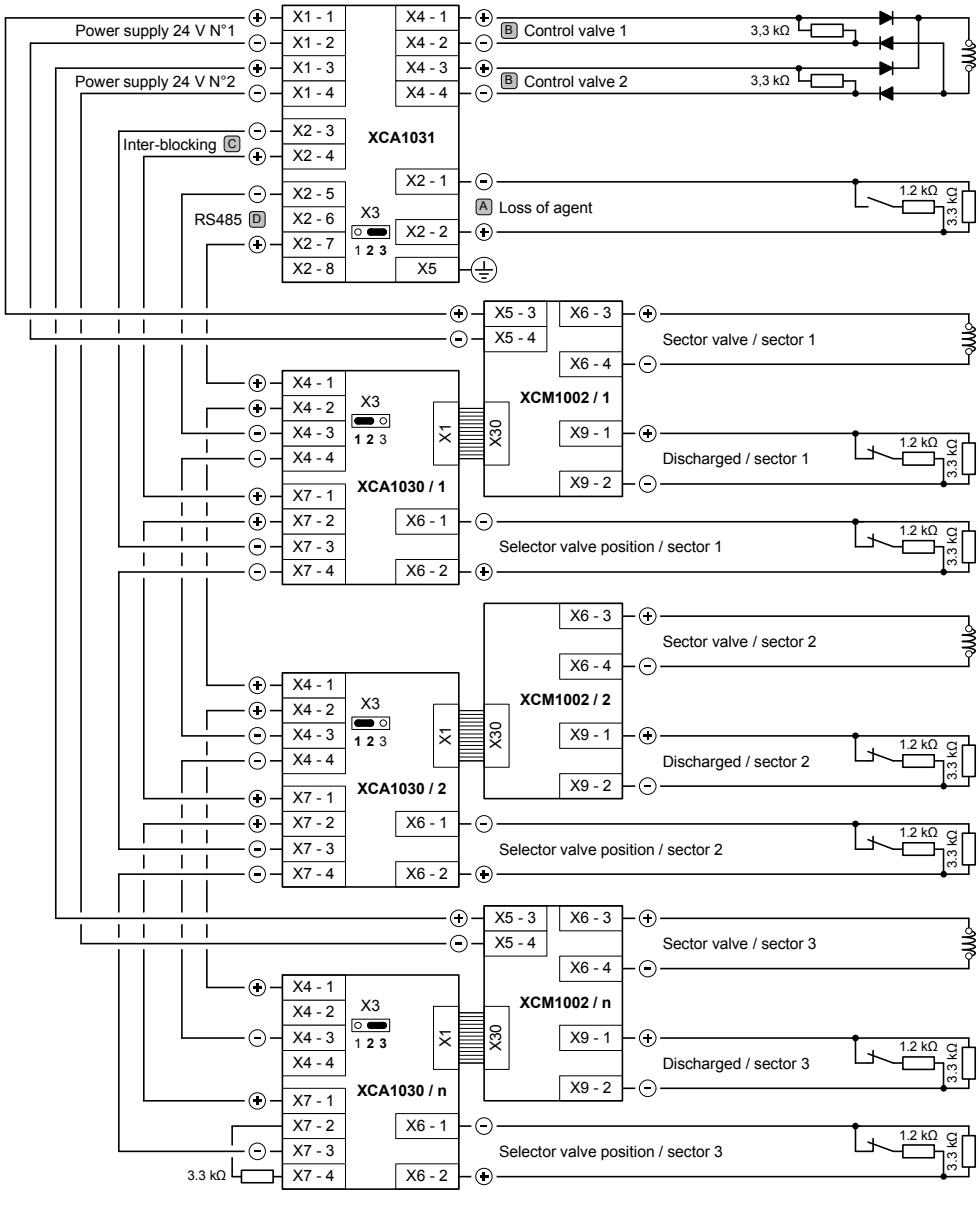
Mark	Terminals	Function
X1	—	XCM1002 main board flat cable connection
X2	—	Not used
X3	—	RS485 bus configuration jumper (see paragraph 8.3)
X4	1 (+) / 3 (–)	RS485 bus
	2 (+) / 4 (–)	
X5	—	Not used
X6	1 (+) / 2 (–)	Selector valve position monitoring
X7	1 (+) / 3 (–)	Inter blocking
	2 (+) / 4 (–)	
X8		
F1 / F2	—	Unused fuses

8.3 Multiple flooding zones modules assembly and connection

Multiple flooding zones modules are mounted on a DIN rail:
- XCA1031 : in the 19" cabinet where XC1003-A control units are installed
- XCA1030 : in each XC1003-A (see Fig. 3)

The drawing below shows a connection example between XCA1030 modules and the XCA1031 for a 3 flooding zones installation.

Note: to ensure power supply redundancy, connect the 24V power supply to the XCA1031 module from two XC10 panels. Otherwise, a fault message is displayed on all XC10 panels.



Jumpers for RS485 configuration (X3) must be on position 2 / 3 for the first and the last modules, on 1 / 2 for the others (see example above).

Fig. 31 XC1003-A, multi-sector installation connection

8.4 Multi-sector modules technical specification

XCA1031:

Actuator output 1 and 2:

- device can be either electromagnetic or pyrotechnic actuator
- activation by reverse polarity (polarities indicated are “activated” polarities, according to connected device, a diode can be necessary)
- line monitoring: 3.3 kΩ resistance connected at the end of the line
- protection: 1 AF fuse (F1 / F2)
- cable type: 2 x 2.5mm^2 max.
- length / resistance of the line: see paragraph 7.6

Loss of agent input:

- line monitoring: 3.3 kΩ resistance connected at the end of the line
- line resistance: 80 Ω max.

XCA1030:

Selector valve position monitoring input:

- line monitoring: 3.3 kΩ resistance connected at the end of the line
- line resistance: 80 Ω max.

9 Accessories

9.1 FCA1007 – Key switch

This device, only usable with XC1001-A and XC1005-A control panel, is connected to the terminal block X8 of XCM1002 mainboard (see paragraph 4.5) and allows operating access level 2 access per key rather than by code:

- the use must be defined by programming (see paragraph 12.15)
- mounting instructions are delivered with the product

9.2 FDCI222 / FDCIO222 – Input/output interfaces

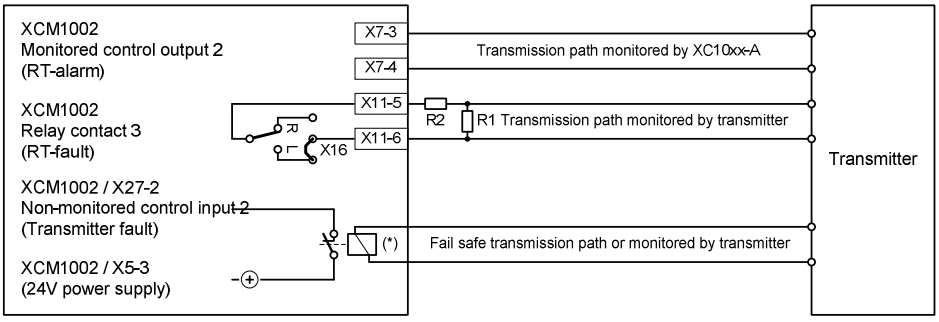
The XC10xx-A control panels can be easily integrated into a large fire safety system to share the local status information and to receive controls. This ensures comfortable visibility of both fire detection and extinguishing at a central point.

FDCI222 / FDCIO222 module interfaces are used to connect the XC10xx-A to the FDNet bus. The FDCI222 is used to transmit information's from the XC10xx-A to the fire safety system. The FDCIO222 is used to transmit information's from the XC10xx-A to the fire safety system and to receive controls from the fire safety system to the XC10xx-A.

- with variants XC1005-A and XC1003-A, the module interface can be installed in the equipment (see fig. 2 and 3 for the locations)
- with variant XC1001-A, the module interface must be installed outside the equipment, close to it

9.3 Remote transmitter

A remote transmitter can be connected to the XC10xx-A as described in the following drawing:



(*) Relay must be installed inside the XC10 equipment
Note: The value of resistances R1 and R2 depend on the transmitter (see transmitter datasheet)

Fig. 32 XC10xx-A, remote transmitter connection

- In order to be compliant with EN54-2 / paragraph 8.1.2 and EN12094-1 paragraph 4.13.1 h), the transmission of the fault condition must be monitored and consequently, the transmitter device must include a dedicated monitored input
- Prog. step 49 option 09 must be selected to configure the control input 2 as transmitter fault input

10 Operating access levels

XC10xx-A equipment operation is organised in several operating access levels.

10.1 Operating access level 1

This level gives access to:
- silence buzzer (see programming options in step 56)
- led test
- fault detailed display
- alarm counter display (XC1005-A only)

10.2 Operating access level 2

This operating access level gives access, after code input on keyboard (**4 2 3 3** by default or personalised) or by key (option), to the following controls:
- silence buzzer (see programming options in step 56)
- silence / re-sound sounders
- automatic blocked / automatic and manual blocked
- disable / enable
- test of zones 1...4
- reset
- test of sounders, warning panels, RT-alarm and RT-fault

Operating access level 2 is automatically disabled after 4 minutes if no handling is carried out for this period.

10.3 Operating access level 3A

This operating access level gives access, after code input on the keyboard, to the “system test” function.

10.4 Operating access level 3B

This operating access level gives access, after removing the front plastic cover and codes input on the keyboard, to:
- user functions programming
- outputs individual test
- checksum display
- alarm counter display
- maintenance PC connection

11 Extinguishing process diagrams

The following diagrams show the execution of an extinguishing process initiated by an automatic activation, a manual release and a mechanical release on the cylinders (optional).

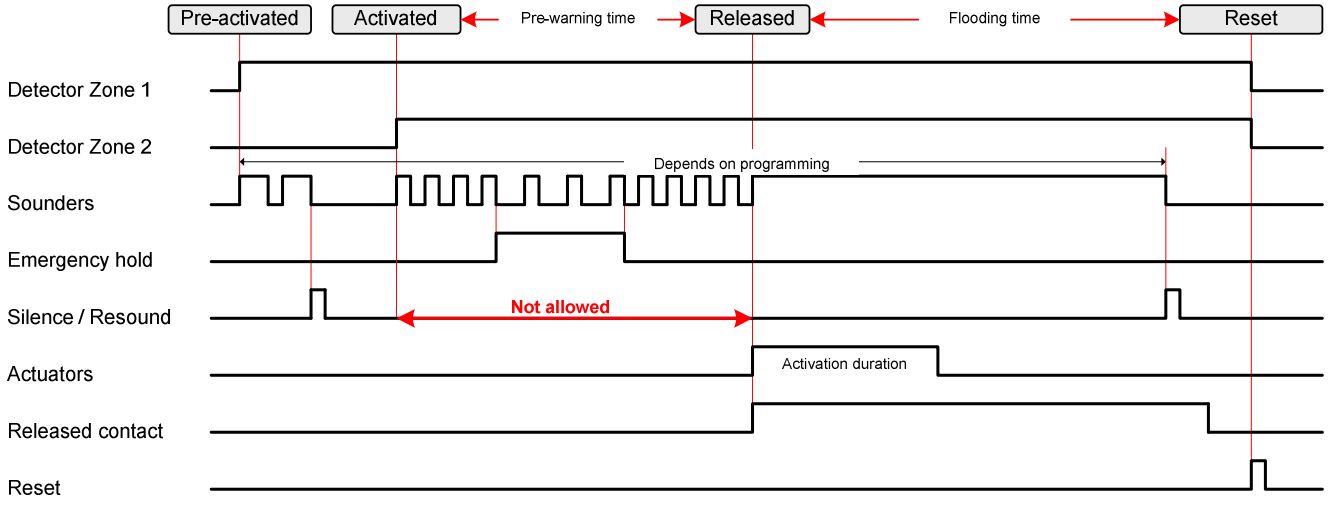


Fig. 33 Extinguishing process initiated by automatic detectors

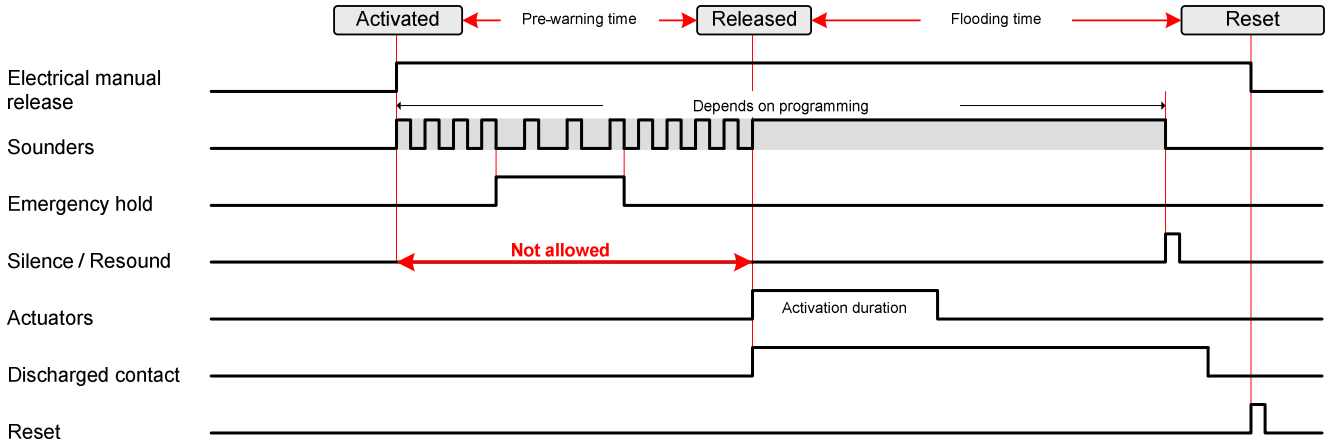


Fig. 34 Extinguishing process initiated by a manual release (DM1103-L)

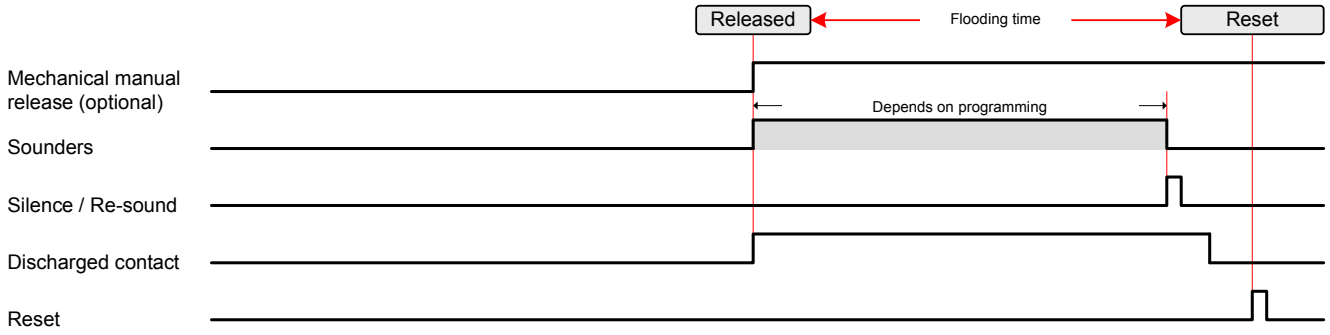


Fig. 35 Extinguishing process initiated by a mechanical release on the cylinders

12 Programming

12.1 Before starting

Some of the programming options are entitled « Processing as ». This means that an output, programmed with this option, will function in the same way:

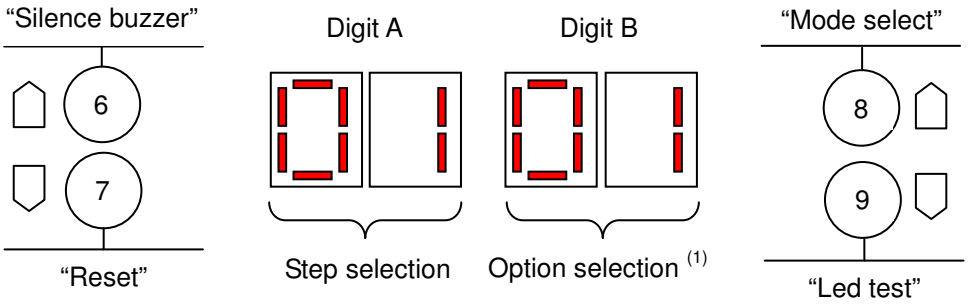
Processing as :	**Description**
RT-alarm	Output can be disabled via key 11 (“Disable RT-Alarm”) Output line fault is reported on “RT-alarm” fault indicator (*)
RT-fault	Output can be disabled via key 11 (“Disable RT-Fault”) Output line fault is reported “RT-fault” fault indicator (*)
Fire controls A, B, C	Output can be disabled via key 10 (“Disable fire controls”) Output line fault is reported on “Fire controls” fault indicator (*) A controls = activated on pre-alarm B controls = activated on pre-alarm, activated, released C controls = activated on activated, released
Sounders	Output can be disabled via key 10 (“Disable Sounder/Actuator”) Output line fault is reported to “Sounders” fault indicator (*)
Actuators	Output can be disabled via key 10 (“Disable Sounder/Actuator”) Output line fault is reported to “Actuators” fault indicator (*)
Not specified	Disable impossible Output line fault is reported to “Fault” indicator (*)

(*)Applies only to monitored outputs

Navigation in programming

Programming is carried out using the « Silence buzzer » (6), « Reset » (7), « Mode select » (8), « Led test » (9) keys and the 4-digit display:

- The “Silence buzzer” key (6) allows scrolling the steps ahead, the “Reset” (7) key scrolling back
- The “Mode select” (8) key allows scrolling the options ahead, the “Led test” (9) key scrolling back
- Both digits on the left indicate programming step, both digits on the right indicate options available for this step



(1) when purpose of an option is time setting, digit B are used to display directly the time selected

Entering / leaving programming

1. Remove the front panel

2. Set the panel to operating access level 2

3. Press and hold down the key « Silence buzzer » (6) then enter the digit code **1 4 2 4 2 3 2 1** on the keyboard to enter programming:
➔ "Disable" LED(6) lights up (fixed), « Test » (7), « Fire alarm » (8) and « Remote transmission » (9) LED light up alternatively, « Operating access » (10) LED switch off
➔ the display indicates, for example, « 0130 » (=step 01, option 30)
4. Carry out the modifications, if necessary
5. Press simultaneously keys "1" to "4" to save and leave programming or key "Reset" (S1) on the XCM1002 mainboard to leave programming without saving.

If no further key is pressed for more than 4 minutes, programming mode is automatically terminated, with modifications saved.

12.2 Presettings

Sixteen country presettings and a factory presetting are available.

Procedure
1. Remove the front panel
2. Press the « Reset » key (S1) XCM1002 board:
➔ the display indicates « b » (= system boot) then a few seconds later the indicator « General fault » (2) flashes slowly
3. During this phase (≈ 30 seconds), press and hold down keys « 1 » to « 4 » of the keyboard until « b » disappears:
➔ the display indicates the presetting number (number between 00 and 16)
➔ LED « General fault » (2) and « Power supply fault » (3) light up (pulsating fast)
4. If the appropriate presetting is displayed (see table below), go to point 6, if not, go to point **5**
5. Press as many times as necessary the key « Mode » (8) to select the appropriate presetting
6. Press and hold down the keys "1" to "4" of the keyboard to validate

The validation of a country presetting (whatever it is) implies that any modification (of one or some of the programming options) will be cancelled and replaced by the options of this presetting.

Step	Presettings and corresponding options																
	00 (factory)	**01 (FR)**	**02 (DK)**	**03 (CH)**	**04 (SE)**	**05 (CZ)**	**06 (BE)**	**07 (NL)**	**08 (FI)**	**09 (SP)**	**10 ()**	**11 ()**	**12 ()**	**13 ()**	**14 ()**	**15 ()**	**16 ()**
01	30	30	30	20	30	30	30	30	30	30	30	30	30	30	30	30	30
02	01	01	01	04	01	01	01	01	01	01	01	01	01	01	01	01	01
03	01	01	01	04	01	01	01	01	01	01	01	01	01	01	01	01	01
04	01	01	15	01	01	01	01	01	01	01	01	01	01	01	01	01	01
05	09	08	10	01	03	09	09	03	09	02	09	09	09	09	09	09	09
06	03	03	05	02	02	02	03	02	03	02	03	03	03	03	03	03	03
07	01	02	01	02	02	05	02	02	01	01	01	01	01	01	01	01	01
08	01	03	01	03	01	01	03	02	01	01	01	01	01	01	01	01	01
09	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
10	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01

Step	Presettings and corresponding options																
	00 (factory)	**01** (FR)	**02** (DK)	**03** (CH)	**04** (SE)	**05** (CZ)	**06** (BE)	**07** (NL)	**08** (FI)	**09** (SP)	**10** ()	**11** ()	**12** ()	**13** ()	**14** ()	**15** ()	**16** ()
11	01	03	01	02	09	01	04	06	01	04	01	01	01	01	01	01	01
12	01	01	04	01	03	04	01	01	01	01	01	01	01	01	01	01	01
13	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
14	03	09	01	01	04	03	03	05	03	01	03	03	03	03	03	03	03
15	18	04	18	08	18	18	18	18	18	18	18	18	18	18	18	18	18
16	01	05	01	19	06	01	19	19	01	19	01	01	01	01	01	01	01
17	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
18	12	06	20	14	14	12	14	16	12	14	12	12	12	12	12	12	12
19	16	11	17	17	17	17	16	11	16	17	16	16	16	16	16	16	16
20	04	04	04	04	02	04	04	07	04	05	04	04	04	04	04	04	04
21	07	14	07	07	03	07	08	08	07	06	07	07	07	07	07	07	07
22	05	05	05	05	04	05	04	04	05	07	05	05	05	05	05	05	05
23	06	06	06	06	05	06	05	05	06	08	06	06	06	06	06	06	06
24	11	11	11	14	06	11	06	06	11	11	11	11	11	11	11	11	11
25	15	15	15	17	14	15	14	14	15	14	15	15	15	15	15	15	15
26	12	12	12	11	17	12	17	16	12	13	12	12	12	12	12	12	12
27	13	13	21	22	12	13	11	11	13	09	13	13	13	13	13	13	13
28	01	03	01	02	01	01	01	02	01	01	01	01	01	01	01	01	01
29	01	01	01	01	01	01	01	02	01	01	01	01	01	01	01	01	01
30	01	06	01	02	01	01	01	01	01	01	01	01	01	01	01	01	01
31	03	06	03	03	05	01	03	03	03	03	03	03	03	03	03	03	03
32	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
33	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
34	01	01	01	02	02	01	01	02	01	02	01	01	01	01	01	01	01
35	01	01	02	02	02	02	01	01	01	01	01	01	01	01	01	01	01
36	01	02	01	01	01	02	01	01	01	01	01	01	01	01	01	01	01
37	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02
38	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02
39	01	02	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
40	01	02	02	02	01	01	01	01	01	01	01	01	01	01	01	01	01
41	01	01	02	01	01	02	01	01	01	01	01	01	01	01	01	01	01
42	01	04	02	01	01	01	01	01	01	01	01	01	01	01	01	01	01
43	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02
44	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
45	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
46	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
47	03	03	04	04	04	02	03	02	03	03	03	03	03	03	03	03	03
48	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
49	12	08	01	01	01	04	04	01	12	07	12	12	12	12	12	12	12
50	12	12	12	08	07	12	02	08	12	11	12	12	12	12	12	12	12
51	12	12	12	12	12	12	01	12	12	12	12	12	12	12	12	12	12
52	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
53	01	01	01	05	01	01	01	01	01	01	01	01	01	01	01	01	01
54	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
55	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
56	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
57	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
58	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
59	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01

12.3 Steps 01 to 04 – Time duration settings

Step	Option	Description
01		**Pre-discharged warning time**
		The Pre-discharged warning time sets the countdown duration before the actuator extinguishing release triggering. During this time, the reset function is not possible. Adjustable from 0 to 60 seconds by step of 5 seconds Default : 30 s
	00	0 second
	05	5 seconds
	10	10 seconds
	15	15 seconds
	20	20 seconds
	25	25 seconds
	30	30 seconds
	35	35 seconds
	40	40 seconds
	45	45 seconds
	50	50 seconds
	55	55 seconds
	60	60 seconds
02		**Monitored output 4 : activation duration**
		The actuator activation time sets the duration of extinguishing release output to Control Line 4. During this time, the reset function is not possible. Adjustable from 5 to 300 seconds by step of 5 seconds Default: 5 s Note 1: For pyrotechnical actuators select an activation time of 5s Note 2: For solenoid actuators, select an activation time of at least 10s. Keep this time duration to a minimum in order to minimize current consumption According to EN12094-1 option with requirement 4.21, this duration can be cancelled by using code (operating access level 3). It is applicable only for installations using electrical valves where the gas concentration is directly function of the valve opening duration.
	01	5 seconds
	02	10 seconds
	03	15 seconds
	⋮	
	58	290 seconds
	59	295 seconds
	60	300 seconds
03		**Monitored output 5 : activation duration**
		Applicable, with the same options as at step 02, only if this output is set to “Process as actuator” (see step 14).
04		**Flooding time**
		The flooding time sets the duration the gas concentration must be maintained. During this time, the reset function is not possible. Adjustable from 0 to 30 minutes by step of 1 minute Default: 1 minute
	01	1 minute
	02	2 minutes
	03	3 minutes
	⋮	
	28	28 minutes
	29	29 minutes
	30	30 minutes

12.4 Step 05 - Sounders

Step	Option	Description

05	**Sounders: program the pattern**				
		Fire alarm	**Activated**	**Emergency hold/abort**	**Released**
	01	Continuous	Pulsated fast	Pulsated slow	Pulsated fast
	02	Pulsated slow	Pulsated fast	Pulsated slow	Continuous
	03	Pulsated fast	Pulsated long	Pulsated fast	Continuous
	04	Pulsated slow	Continuous	Pulsated slow	Continuous
	05	Continuous	Continuous	Pulsated slow	Pulsated fast
	06	Continuous	Continuous	Continuous	Continuous
	07	Pulsated slow	Continuous	Continuous	Continuous
	08	Not activated	Continuous	Pulsated slow	Continuous
	09	Pulsated long	Pulsated fast	Pulsated slow	Continuous
	10	Pulsated fast	Continuous	Continuous	Continuous
	11	Pulsating fast	Continuous	Pulsating fast	Continuous
	Pulsated fast = Active 1 second / Inactive 1 second Pulsated slow = Active 1 second / Inactive 4 seconds Pulsated long = Active 4 seconds / Inactive 1 second Note: according to EN 12094-1 paragraph 4.30.2, sounders activation during released condition shall be continuous				

12.5 Steps 06 to 09 - Remote transmission

Step	Option	Description

06	**RT-alarm: program the activation**	
	01	Active in state fire alarm
	02	Active in state fire alarm, activated, released
	03	Active in state activated, released
	04	Active in state released
	05	Active in state fire alarm, activated, released, zone 4 in alarm condition *Application: transmit RT-Alarm as soon as the DM1103-L is activated, even if "Manual blocked" is selected*
07	**RT-fault : program the activation**	
	01	Activation : without delay on any fault Duration : until buzzer silence
	02	Activation : without delay on any fault Duration : until buzzer silence and fault elimination
	03	Activation : after 3 mn, on any fault, if buzzer is not silenced Duration : until buzzer silence
	04	Activation : after 3 mn, on any fault, if buzzer is not silenced Duration : until buzzer silence and fault elimination
	05	Activation : without delay on any fault, disable, mechanical blocking, loss of agent, incorrect status Duration : until activation cause disappears
08	**« Remote transmission » LED (9): activation and operation**	
	01	Lights up on RT-alarm (Enable/Disable, via key 11, possible)
	02	Lights up on RT-alarm and RT-fault (Enable/Disable, via key 11, possible)
	03	Unused (key 11 disabled) *Application: Remote transmission not used [FR] → outputs programmed as " Remote transmission" cannot be disabled*
09	**RT-Alarm and RT-Fault suppression when operating access level 2**	
	01	Remote transmission not blocked
	02	Remote transmission blocked *Application: avoid the remote transmission when the system is controlled by the operator*

12.6 Steps 10 to 14 - Monitored outputs 1 to 5

Step	Option	Description
10	**Monitored output 1 : select the operation**	
	01	Processing as “Sounder” Active until “Silence/Re-sound” or “Reset” via non-monitored control input 1
11	**Monitored output 2 : select the operation**	
	01	Processing as “RT-alarm”
	02	Processing as “Fire control A”
	03	Processing as “Fire control B”
	04	Processing as “Fire control C”
	05	Processing as “Sounders”
	06	Processing as “Sounder” except that: - is activated continuously in state “Activated” - is deactivated in state “Emergency Hold/Abort” *Application: additional wire for second tone sounder*
	07	Active in state “Mechanical blocked” *Application: use of a specific Warning Panel showing that extinguishing is blocked*
	08	Active in state “Automatic blocked” or “Manual blocked” *Application: specific Warning Panel for “Manual Blocked” or “Automatic Blocked”*
	09	Active in state “Automatic blocked” and “Manual blocked” *Application: specific Warning Panel for “Manual Blocked” and “Automatic Blocked”*
12	**Monitored output 3 : operation**	

		Fire alarm	**Evacuation**	**Emission**
	01	Not activated	Continuous	Continuous until reset
	02	Not activated	Pulsating	Continuous until reset
	03	Not activated	Pulsating	Continuous until “key 4” is pressed after reset
	04	Pulsating	Continuous	Continuous until reset

13	**Monitored output 4 : operation**	
	01	Processing as “Actuators”
14	**Monitored output 5 : operation**	
	01	Processing as “Actuators” *Application: several actuators shared on 2 different lines and triggered at the same time*
	02	Processing as “Actuators” Same as “Control line 4”, but Pre-Discharged warning time is 0 second *Application: activation of a selector valve before a control valve*
	03	Processing as “Fire control A”
	04	Processing as “Fire control B”
	05	Processing as “Fire control C”
	06	Active in state “Mechanical Blocked” *Application: use of a specific Warning Panel showing that extinguishing is blocked*
	07	Active in state “Automatic Blocked” or “Manual Blocked” *Application: use of a specific warning panel for “Automatic Blocked” or “Manual Blocked”*
	08	Active in state “Automatic blocked” and “Manual blocked” *Application: specific Warning Panel for “Manual Blocked” and “Automatic Blocked”*
	09	Not used (no EOL required)

12.7 Steps 15 to 19 - Relay contact 1 to 5

Step	Option	Description
15	**Relay output 1 : select the function**	
	01	Processing as “Fire control A”
	02	Processing as “Fire control B”
	03	Processing as “Fire control C”
	04	Active in state ”Fire alarm”
	05	Active in state ”Activated”
	06	Active in state ”Released”
	07	Active in state “Fire alarm” or “Activated” or ”Released”
	08	Active in state “Activated” or ”Released”
	09	Active in state “Loss of agent”
	10	Active in state “Detector test”
	11	Active in state “Disabled”
	12	Active in state “Emergency hold/abort”
	13	Active in state “Mechanical blocked”
	14	Active in state “Automatic blocked”
	15	Active in state “Manual blocked”
	16	Active in state “Automatic blocked” or “Manual blocked”
	17	Active in state “Automatic blocked” and “Manual blocked”
	18	Processing as "RT-alarm"
	19	Processing as "RT-fault"
	20	Inactive in state “Fault” or “Disable” or “Mechanical blocked” or “Loss of agent” or “Incorrect status” Active in all other states
	21	Active during 5 seconds when the key reset is pressed *Application: reset of an XC10 panel and reset of an ASD system within a single operation*
	22	Active in state: - “Manual blocked” - Zone 4 in fault condition - “Processing as actuator” control lines in fault condition - Actuator disabled
16	**Relay contact 2 : select the function**	
	Same options as relay contact 1 – default = 01	
17	**Relay contact 3 : select the function**	
	01	Processing as "RT-fault"
18	**Relay contact 4 : select the function**	
	Same options as relay contact 1 – default = 12	
19	**Relay contact 5 : select the function**	
	Same options as relay contact 1 – default = 16	

12.8 Steps 20 to 27 – Driver outputs 1 to 8

Step	Option	Description
20	**Driver output 1 : select the function**	
	01	Processing as “Fire control A”
	02	Processing as “Fire control B”
	03	Processing as “Fire control C”
	04	Active in state ”Fire alarm”
	05	Active in state ”Activated”
	06	Active in state ”Released”
	07	Active in state “Fire alarm” or “Activated” or ”Released”
	08	Active in state “Activated” or ”Released”
	09	Active in state “Loss of agent”
	10	Active in state “Detector test”
	11	Active in state “Disabled”
	12	Active in state “Emergency hold/abort”
	13	Active in state “Mechanical blocked”
	14	Active in state “Automatic blocked”
	15	Active in state “Manual blocked”
	16	Active in state “Automatic blocked” or “Manual blocked”
	17	Active in state “Automatic blocked” and “Manual blocked”
	18	Inactive in state “Pre-activated” or “Activated” or “Released” Active in all other condition *Application : use of a fail safe door magnetic solenoid*
	19	Inactive in state "Normal" with operating access level 1 only Active in all other states *Application: the customer needs a remote indication as soon as the panel is not anymore in a "Standby" condition and as soon as somebody is operating the panel*
	20	Inactive in state "Normal" with operating access level 1 or 2 Active in all other states *Application: the customer needs a remote indication as soon as the panel is not anymore in a "Standby" condition*
	21	Active during 5 seconds when the key reset is pressed *Application: reset of an XC10 panel and reset of an ASD system within a single operation*
	22	Active in state: - “Manual blocked” - Zone 4 in fault condition - “Processing as actuator” control lines in fault condition - Actuator disabled
21	**Driver output 2 : select the function**	
	Same options as unmonitored output 1 – default = 07	
22	**Driver output 3 : select the function**	
	Same options as unmonitored output 1 – default = 05	
23	**Driver output 4 : select the function**	
	Same options as unmonitored output 1 – default = 06	
24	**Driver output 5 : select the function**	
	Same options as unmonitored output 1 – default = 11	
25	**Driver output 6 : select the function**	
	Same options as unmonitored output 1 – default = 15	
26	**Driver output 7 : select the function**	
	Same options as unmonitored output 1 – default = 12	
27	**Driver output 8 : select the function**	
	Same options as unmonitored output 1 – default = 13	

12.9 Steps 28 to 31 - Monitored inputs 1 to 4

Step	Option	Description
28	**Monitored input 1 : released contact**	
	01	Contact (1.2 kΩ) normally closed when there is no gas in piping
	02	Contact (1.2 kΩ) normally opened when there is no gas in piping
	03	No contact ("Released" condition will be indicated as soon as actuators are activated)
29	**Monitored input 2 : loss of agent contact**	
	01	Contact (1.2 kΩ) normally closed when cylinders pressure/weight is correct
	02	Contact (1.2 kΩ) normally opened when cylinders pressure/weight is correct
	03	No contact
30	**Monitored input 3 : select the function**	
	01	Mechanical blocking device: – Contact (1.2 kΩ) closed + contact (680 Ω) opened = "Normal" – Contact (1.2 kΩ) opened + contact (680 Ω) closed = "Mechanical blocked" Note: Any other combination (2 opened or closed contacts) = "Incorrect status"
	02	Mechanical blocking device: – Contact (1.2 kΩ) closed + contact (680 Ω) opened = "Normal" – Contact (1.2 kΩ) opened + contact (680 Ω) closed = "Mechanical blocked" + "Automatic blocked" + "Manual blocked" Note: Any other combination (2 opened or closed contacts) = "Incorrect status"
	03	Extinguishing remote activation: Contact (1.2 kΩ) closed = extinguishing process start ⚠ Care shall be taken using this option, as this input starts the extinguishing process
	04	Automatic blocked / Manual blocked / Automatic and manual blocked: – Contact (680 Ω) closed = "Manual blocked" – Contact (1.2 kΩ) enabled = "Automatic blocked" – Contacts (680 Ω + 1.2 kΩ) enabled = "Manual blocked" and "Automatic blocked"
	05	Emergency abort: – Contact (1.2 kΩ) closed during pre-discharged warning time = extinguishing process aborts (*) – Contact (1.2 kΩ) closed during flooding time = no effect – Contact (1.2 kΩ) closed at any other time = extinguishing process is stopped (*) (*)Until the system is reset and the contact opened
	06	Unused input
31	**Monitored input 4 : select the function**	
	01	Emergency abort: – Contact (1.2 kΩ) closed during pre-discharged warning time = extinguishing process aborts (*) – Contact (1.2 kΩ) closed during flooding time = no effect – Contact (1.2 kΩ) closed at any other time = extinguishing process is stopped (*) (*)Until the system is reset and the contact opened
	02	Emergency abort: – Contact (1.2 kΩ) closed during pre-discharged warning time = extinguishing process aborts (*) – Contact (1.2 kΩ) closed during flooding time = extinguishing process stop + actuators de-activated (*) – Contact (1.2 kΩ) closed at any other time = extinguishing process is stopped (*) (*)Until the system is reset and the contact opened
	03	Emergency hold -EN 12094-1 4.20.3 b)compliant – Contact (1.2 kΩ) closed during pre-discharged warning time = extinguishing process is hold as long as the contact is maintained closed. When the contact is released, pre-discharged warning time restarts – Contact (1.2 kΩ) closed after actuator activation = no effect – Contact (1.2 kΩ) closed at any other time = extinguishing process is hold as long as the contact is maintained closed
	04	Emergency hold -EN 12094-1 4.20.3 a)compliant – Contact (1.2 kΩ) closed during pre-discharged warning time = extinguishing process is hold as long as the contact is maintained closed. Pre-discharged warning time continues – Contact (1.2 kΩ) closed after actuator activation = no effect Contact (1.2 kΩ) closed at any other time = extinguishing process is hold as long as the contact is maintained closed
	05	Automatic blocked / Manual blocked / Automatic and manual blocked: – Contact (680 Ω) closed = "Manual blocked" – Contact (1.2 kΩ) closed = "Automatic blocked" – Contacts (680 Ω + 1.2 kΩ) closed = "Manual blocked" and "Automatic blocked"
	06	Not used (EOL resistor not required)

12.10 Steps 32 to 38 - Reset

Step	Option	Description
32		**Reset: zones 1 and 2 operation**
	01	Alarm < 15 seconds after reset = "Alarm"
	02	Alarm < 15 seconds after reset = "Fault"
33		**Reset: zone 3 operation**
	01	Alarm < 15 seconds after reset = "Alarm"
	02	Alarm < 15 seconds after reset = "Fault"
34		**Reset: manual control input operation**
	01	Input enabled < 15 seconds after reset = "Alarm"
	02	Input enabled < 15 seconds after reset = "Fault"
35		**Reset: monitored input 1 operation (discharged contact)**
	01	Input enabled < 15 seconds after reset = "Released"
	02	Input enabled < 15 seconds after reset = "Fault"
36		**Reset: front panel key operation**
	01	Reset possible only after: ➔ "Silence buzzer" and ➔ "Silence sounders" and ➔ "Flooding time"
	02	Reset possible only after: ➔ "Silence buzzer" and ➔ "Silence sounders" and ➔ "Flooding time" and ➔ "Manual release" is reseted and ➔ "Discharged" contact is reseted
37		**Reset: control input 1 operation**
	01	Reset possible at any time (not EN 12094-1 and EN 54-2 compliant)
	02	Reset possible only after: ➔ "Silence buzzer" and ➔ "Silence sounders" and ➔ "Flooding time" and ➔ "Manual release" is reseted and ➔ "Discharged" contact is reseted
38		**Reset during emergency hold**
	01	Reset is possible during "Emergency hold" (not EN 12094-1 compliant)
	02	Reset is not possible during "Emergency hold"

12.11 Steps 39 to 43 - Operation

Step	Option	Description
39		**Buzzer in state "Emergency hold/abort" operation**
	01	One second beep at each "Emergency hold/abort" change
	02	Pulsated until "Silence buzzer"
40		**Pre-activated condition: select the function in case "Automatic blocked" operation**
	01	Alarm on one of the extinguishing triggering zones = "Fire alarm" + "Pre-activated" until "Automatic blocked" condition is cancelled or "Reset"
	02	Alarm on one of the extinguishing triggering zones = "Fire alarm" until "Automatic blocked" condition is cancelled or "Reset"
41		**Automatic/Manual blocking: standard or alternative display**
	01	Standard (EU) : LED 14 = "Manual blocked", LED 15 = not used, LED 16 = "Automatic blocked"
	02	Alternative (UK) : LED 14 = "Manual blocked", LED 15 = "Automatic & manual", LED 16 = "Automatic blocked"
42		**Discharged contact: select the display in case the contact is not activated within 30s after the gas release**
	01	"Released" led flashes slow [1)]

	02	"Released" led flashes fast [1] + "Fault" [1]
	03	"Released" led is not activated [2] + "Fault" [1]
	04	"Released" led is not activated [2]
	[1] The corresponding relay contacts and/or driver outputs are activated [2] The corresponding relay contacts and/or driver outputs are not enabled	
43	**Loss of agent: select the display during flooding time**	
	01	Indicated after "Released"
	02	Indicated after "Reset" *Application: "Loss of agent" is normal after a release and do not correspond to a gas leakage*

12.12 Steps 44 to 47 - Faults

Step	Option	Description
44	**Fault display**	
	01	Immediate (any fault)
	02	After 15 seconds (except for emergency hold/abort, loss of agent and incorrect status)
45	**Fault reset**	
	01	Faults must not be reseted
	02	Faults must be reseted
46	**Batteries fault**	
	01	Indicated
	02	Not indicated (not EN 12094-1 and EN 54-2 compliant)
47	**Mains fault**	
	01	Indicated immediately
	02	Indicated after 3 minutes
	03	Indicated after 10 minutes
	04	Indicated after 30 minutes
	05	Indicated after 3 hours (not EN 12094-1 and EN 54-2 compliant)

12.13 Steps 48 to 51 – Non monitored control inputs 1 to 4

Step	Option	Description
48	**Non monitored control input 1**	
	01	"Reset" [2] [3]
49	**Non monitored control input 2**	
	01	"Silence buzzer" [2]
	02	"Automatic blocked" [1] [3]
	03	"Manual blocked" [1] [3]
	04	"Automatic and manual blocked" [1] [3]
	05	External device disabled [1]
	06	"RT-Alarm" and "RT-Fault" disabled [1]
	07	External device fault [1]
	08	External power supply fault [1]
	09	Fault on "RT-Fault" line from external device remote transmission (transmitter, for example) [1]
	10	Level 2 operating access [1] [3]
	11	"Silence/Resound" sounders [2] [3]
	12	No effect
50	**Non monitored control input 3**	
	Same options as non monitored control input 2 – default = 12	
51	**Non monitored control input 4**	

	Same options as non monitored control input 2 – default = 12

[1] State is maintained as long as a potential +24V is applied
[2] Pulse control (0.2 s minimum)
[3] Control must be possible through a level 2 access device only

12.14 Steps 52 to 55 - Detection zones

Step	Option	Description
52	**Alarm verification: select zones (*)**	
	01	No alarm verification
	02	Zone 1
	03	Zone 2
	04	Zones 1 and 2
	05	Zone 3
	06	All zones
	(*)The alarm condition is enabled only after 2 consecutive alarms in less than 60 seconds (the 1st one is reset automatically). The delay for the second alarm is 8 s. If the second alarm doesn't come within 60 s, the first alarm is automatically reseted. The first alarm is indicated by the red led during 2 s.	
53	**Automatic release: select zones combination**	
	01	Alarm zone 1 AND Alarm zone 2
	02	(Alarm zone 1 AND Alarm zone 2) OR (Fault zone 1 AND Alarm zone 2) OR (Alarm zone 1 AND Fault zone 2)
	03	Alarm zone 1 AND Alarm zone 2 AND Alarm zone 3
	04	(Alarm zone 1 AND Alarm zone 2) OR Alarm zone 3
	05	(Alarm zone 1 AND Alarm zone 3) OR (Alarm zone 2 AND Alarm zone 3) OR (Alarm zone 1 AND Alarm zone 2)
	06	Alarm zone 1 OR Alarm zone 2
	07	Alarm zone 1
	⚠ Care shall be taken using option 04, 06 and 07 as it triggers the extinguishing process on a single alarm	
54	**Zones disabling**	
	01	Zone "Disable" and zone "Test" is allowed
	02	Zone "Disable" and zone "Test" is not possible *Application: installations where it is not permitted to suppress automatic detection (CO_2 for example)*
55	**Zone 3 : Fire alarm condition**	
	01	"Fire alarm" condition indicated, RT-Alarm activated
	02	"Fire alarm" condition indicated, RT-Alarm not activated

12.15 Steps 56 to 57 – Operating access level

Step	Option	Description
56	**"Silence buzzer": change access level**	
	01	Possible at access levels 1 and 2
	02	Possible at access level 2 only
57	**Access level 2**	
	01	Default code = 4 2 3 3
	02	Individual access code: 1. Enter the desired code on the keyboard (4 to 6 digits) 2. Press the key (12) "Disable / Test zone 1" : ➔ red led zone 1 (25) flashes 3. Repeat operations 1 and 2 (code confirmation) : ➔ red led zone 1 (25) lights continuously = code accepted ➔ yellow led zone 1 (26) flashes = code not accepted (repeat operations 1 to 3)
	03	Operating access level 2 is provided with an external optional key (in this case, code access is not possible)

12.16 Step 58 – Multi-sector

Step	Option	Description
58		**Multi-sector operation**
	01	The panel is not part of a multi-sector installation
	02	The panel is part of a multi-sector installation, including inter-blocking (see EN12094-1 option 4.29) / Valid only for XC1003-A
	03	The panel is part of a multi-sector installation, without inter-blocking / Valid only for XC1003-A

12.17 Step 59 - Detectors

Step	Option	Description
59		**Detector type**
	01	Detectors without current limitation (Algorex / Sinteso)
	02	Detectors with current limitation (Synova)
	03	Detectors without current limitation (Algorex / Sinteso) BS5839Pt1 compliant
	04	Detectors with current limitation (Synova) BS5839Pt1 compliant

13 Commissioning

Before commissioning, ensure that:
- the control unit is correctly mounted on a fixed support
- all detector bases are correctly connected
- all monitored lines are correctly connected and equipped with respective EOL
- all accessory or optional parts are present
- FCP1004-E power supply setting correspond to the mains voltage
- mains voltage is available
- batteries are installed, but not connected yet
- installation of extinguishing devices (piping, cylinders, manometers, discharged contact …) is completed

13.1 Powering

1. switch on the mains circuit breaker
2. connect the batteries and, if necessary, the total loss of power cable (see 7.2)
3. select presetting appropriate to your country need (see paragraph 12.2)
4. set, if necessary, user functions (see paragraphs 12.3 to 12.17)
5. calibrate monitored control outputs 4 and 5 (see paragraph 13.2)
6. eliminate possible faults (see paragraph 14.2)

13.2 Monitored control outputs 4 and 5 calibration

1. select operating access level 2
2. enter the code **2 1 4 3 2 3** on the keyboard then press "Enable/Disable actuators" (10) key within 5 seconds:
   – display shows "CAL", "Operating access" led goes out (= calibration process start)
3. wait until the buzzer sounds twice (=end of calibration process). Two possibilities can arise:
   ➔ calibration success:
      – "Fault" (2) and "Actuators" (20) led goes out
      – display shows "OK" for a few seconds, then goes out, "Disable" led (6) goes out, "Operating access" led lights up again
   ➔ calibration failure:
      – display shows "4E5E" or "4E.. " or " ..5E" for a few seconds then "ECAL"
      – “Fault” led (2), "Disable" led (6) and "Actuators" led (20) led remain lit up, "Operating access" lights up again
      – check the cable connections of the output concerned (4 and/or 5)
      – re-start the procedure at point **2**

➔ At first commissioning, monitored control outputs 4 and 5 not being calibrated, will display a fault indication:
   – "Actuators" led (20) and “Fault” led (2) flash fast
   – "Disable" led (6) lit up fix
   – Display shows "ECAL" (= Error calibration)
➔ Calibration fails if the resistance value measured during the calibration process is equal to 0 Ω or > 900 Ω
➔ Calibration of monitored output 5 is not carried out if this output is programmed “Not used”

13.3 System test

1. check the extinguishing process by automatic and manual activation
2. check display of "Released" condition
3. check the pre-warning time
4. check sounders and warning panels operation
5. check RT-Alarm and RT-Fault
6. check fire controls operation
7. check the mechanical blocking device
8. check "Emergency hold/abort" and/or "Automatic blocked" functions
9. check display of "Loss of agent" condition by opening the corresponding contacts

13.4 Commissioning validation

Commissioning is completed, when:
- all functions were checked and system works perfectly
- each detector was tested
- RT-Alarm and/or RT-fault works correctly
- no fault is displayed
- internal buzzer is not disabled (jumper X3 / XCM1002 = ON)
- permanent “Level 2” operating access is disabled (jumper X8 / XCM1002 = OFF)
- all cylinders are connected and pressure or weight is correct
- mechanical blocking device is disabled
- all selector valves are closed (for multi-sector installation only)
- the responsible person in charge of the installation was trained and informed

14 Maintenance

14.1 Preventive maintenance

Tasks to be carried out **weekly**:
- check all panel indications and press "Led test"

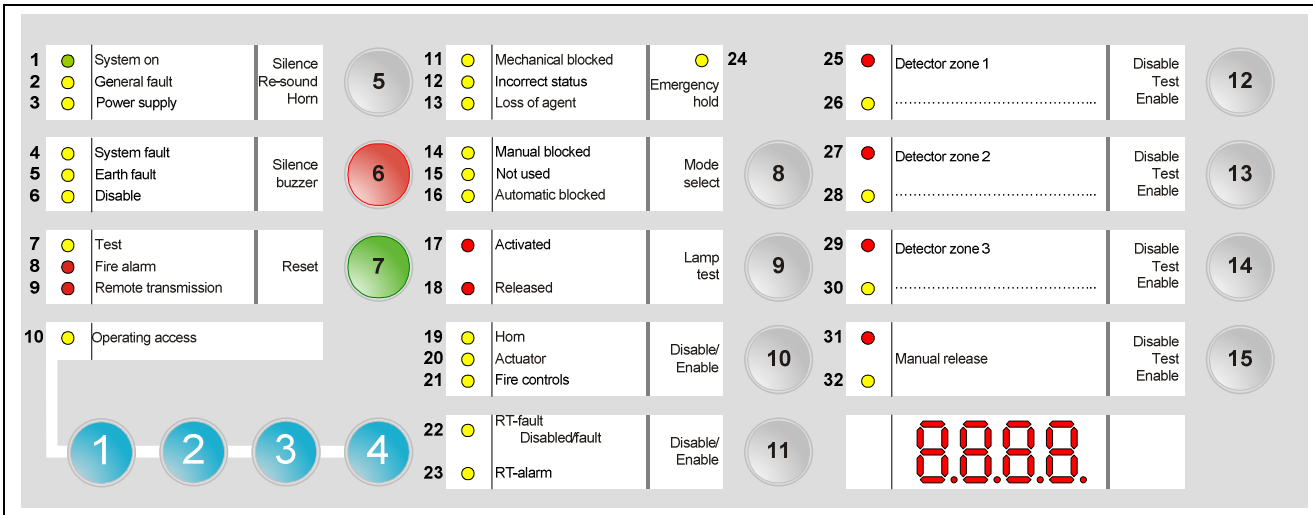
Tasks to be carried out **annually**:
- check automatic activation
- check manual activation
- check released condition by activation of the discharged contact
- check emergency hold/abort devices
- check mechanical blocking device
- check loss of agent indication
- check batteries (visual)

Tasks to carry out **every 2 years:**
- clean the control panel with soft soap. Do not use any aggressive solvent or containing abrasive material
- check labels legibility and exactitude
- check each operating key
- check operating access levels

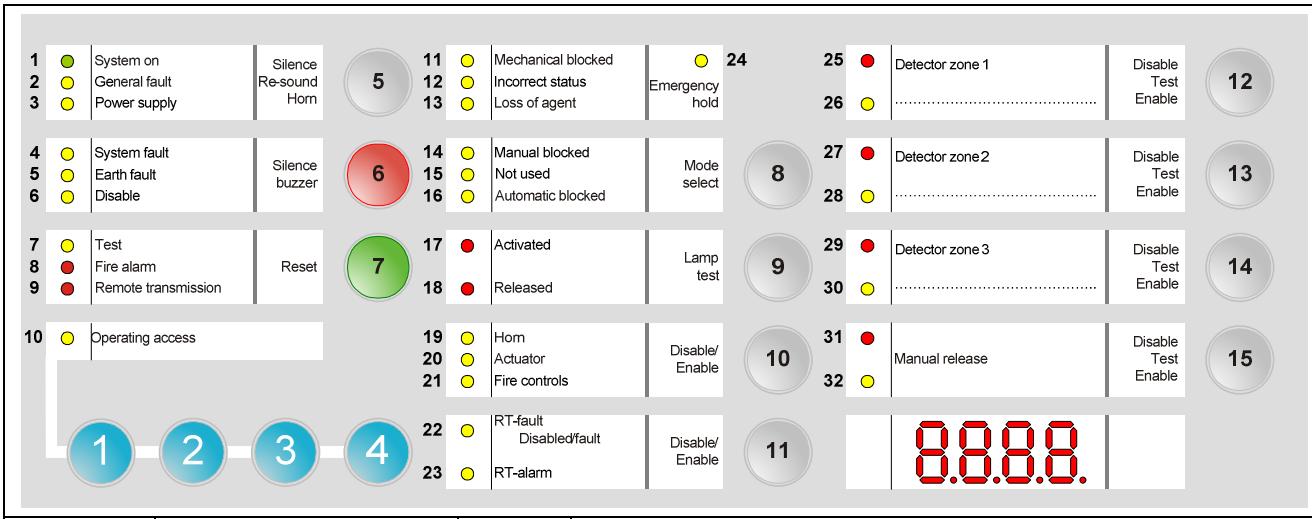
Tasks to carry out **every 4 years**:
- check all fire detectors
- check all detection circuit shorts and breaks
- check earthing connection
- replace batteries
- replace pyrotechnical actuators (is used)

14.2 Detailed fault display

Press simultaneously keys “1” and “3” of the numeric keypad:
➔ Faults appear for 5 seconds according to the table below
OL: Open Line
SC: Short Circuit



LED		Designation	State	Significance	
N°	Color				
2	Yellow	Fault	Fixed	Multi-sector function: individual module (XCA1030) disconnected	
			Slow	Multi-sector function: RS485 bus (OL / SC / communication fault)	
3	Yellow	Power supply fault	Fixed	Multi-sector function: loss of agent	
			Slow	Multi-sector function: loss of agent (OL / SC)	
5	Yellow	Earth fault	Fixed	Multi-sector function: earth fault	
6	Yellow	Disable	Fixed	Multi-sector function: actuator (OL / SC)	
			Slow	Multi-sector function: inter-blocking (OL / SC)	
			Fast	Multi-sector function: actuator + inter-blocking (OL / SC)	
7	Yellow	Test	Fixed	Multi-sector function: selector valve (SC)	
			Slow	Multi-sector function: selector valve (OL)	
			Fast	Multi-sector function: selector valve (incorrect status)	
8	Red	Fire alarm	Fixed	Multi-sector function: actuator blocked	
9	Red	Remote transmission	Fixed	Multi-sector function: power supply fault	
11	Yellow	Mechanical blocked	Fixed	SC	Monitored input 1
			Slow	OL	
12	Yellow	Incorrect status	Fixed	SC	Monitored input 2
			Slow	OL	
13	Yellow	Loss of agent	Fixed	SC	Monitored input 3
			Slow	OL	
			Fast	Incorrect status	
14	Yellow	Manual blocked	Fixed	SC	Monitored input 4
			Slow	OL	
15	Yellow	Not used	Fixed	24 V output fuse blown	
16	Yellow	Automatic blocked	Fixed	Key enabled more than 5 mn	
19	Yellow	Sounders	Fixed	SC	Monitored output 1
			Slow	OL	



LED		Designation	State	Significance	
N°	Color				
20	Yellow	Actuators	Fixed	SC	Monitored output 2
			Slow	OL	
21	Yellow	Fire controls	Fixed	SC	Monitored output 3
			Slow	OL	
22	Yellow	RT-Fault	Fixed	SC	Monitored output 4
			Slow	OL	
			Fast	Calibration error	
23	Yellow	RT-Alarm	Fixed	SC	Monitored output 5
			Slow	OL	
			Fast	Calibration error	
25	Red	Zone 1	Fixed	Alarm < 15 s after reset	Detection line 1
26	Yellow	Zone 1	Fixed	SC	
			Slow	OL	
27	Red	Zone 2	Fixed	Alarm < 15 s after reset	Detection line 2
28	Yellow	Zone 2	Fixed	SC	
			Slow	OL	
29	Red	Zone 3	Fixed	Alarm < 15 s after reset	Detection line 3
30	Yellow	Zone 3	Fixed	SC	
			Slow	OL	
31	Red	Manual release	Fixed	Enabled < 15 s after reset	Manual release line
32	Yellow	Manual release	Fixed	SC	
			Slow	OL	

CAUTION

Any electrical fault (break or short circuit) on the following lines may have a direct consequence on the extinguishing process, or in some cases prevent it.
- Detector lines
- Manual release line
- Monitored control output 1 to 5
- Monitored inputs 1 to 4

It is imperative to fix any fault in a short delay in order to not jeopardize an extinguishing process.

15 Test functions

Generally, test functions described in this chapter are only possible when the equipment is in standby condition (=no alarm). If an alarm occurs, the test ends immediately.

15.1 Lamp test

Press the « Lamp test » (9) key and check that:

- all leds light up
- internal buzzer sounds
- all segments of the display light up and software version is displayed (requires front panel remove for XC1001-A / XC1003-A versions)

15.2 Sounder test

1. Enable operating access level 2
2. Press and hold down key « 1 » on numeric keypad then press the « Silence / Re-sound sounder » key (5):
   ➔ sounders outputs are enabled for 30 seconds
   ➔ « Sounder » led (19) flashes slowly
3. Press the « Lamp test » key (9) to end the test before 30 seconds, if necessary

All the outputs programmed as “Sounders” are enabled.

15.3 Warning panels test

1. Enable operating access level 2
2. Press and hold down key « 2 » on numeric keypad then press the « Silence / Re-sound sounder » key (5):
   ➔ warning panels outputs are enabled for 30 seconds
   ➔ « Fire controls » led (21) flashes slowly
3. Press the « Lamp test » key (9) to end the test before 30 seconds, if necessary

Only the monitored control output 3 is enabled.

15.4 RT-alarm test

1. Enable operating access level 2
2. Press and hold down key « 3 » on numeric keypad then press the « Silence / Re-sound sounder » key (5):
   - RT-alarm outputs are enabled for 30 seconds
   - « RT-alarm » led (23) flashes slowly
3. Press the « Lamp test » key (9) to end the test before 30 seconds, if necessary

All the outputs programmed as « RT-alarm » are enabled.

15.5 RT-fault test

1. Enable operating access level 2
2. Press and hold down key « 4 » on numeric keypad then press the « Silence / Re-sound sounder » key (5):
   - RT-fault output is enabled for 30 seconds
   - « RT-fault » led (22) flashes slowly
3. Press the « Lamp test » key (9) to end the test before 30 seconds, if necessary

Only the output relay 3 is enabled.

15.6 System test

The system test makes it possible to check the extinguishing process.

During system test:
- All the outputs, except those programmed as actuators, are enabled
- « Actuators » led (20) flashes slowly to indicate the activation of the monitored output 4 and possibly 5 if programmed as « Actuators »

Procedure
1. Enable operating access level 2
2. Enter the code 2 1 1 2 4 3 on the keypad then press « Mode select » key (8) within 5 seconds to enable system test:
   - « Operating access » led (10) flashes slowly
3. Carry out the tests
4. Press the « Reset » key (7) then press « Mode » (8) within 5 seconds to disable system test:
   - « Operating access » led (10) lights up fixed

The system test remains enabled as long as point 4 of above procedure is not carried out.

15.7 Individual output test

All the outputs, except those programmed as actuators, can be tested individually:

- The individual test of the outputs, once enabled, automatically ends after 1 mn if no action is carried out for this period
- The outputs can be tested only one by one (duration = 3 mn max.)

During test phase:

- Alarms and faults are not indicated
- The extinguishing process cannot be started
- Programming access is not possible
- The connection with the maintenance PC cannot be enabled

Procedure

1. Remove the front plastic cover (XC1001-A / XC1003-A only)
2. Enable operating access level 2
3. Press and hold down the key « Silence buzzer » (6), then enter the code **3 4 2 1 1 2** on the keypad:
➔ Display indicates « 0101 »
➔ « System fault » (4), « Earth fault » (5) and « Disable » (6) led light up alternatively, « Operating access » led (10) goes out
4. Press the key « Silence buzzer » (6) to choose the category of the output to be tested (represented by both digits on the left of the display):
➔ 01 = monitored outputs
➔ 02 = relay outputs
➔ 03 = driver outputs
5. Press the « Mode select » key (8) to choose the number of the output to be tested (represented by both digits on the right of the display)
6. Press the « Lamp test » key (9) to start the test:
➔ The output is enabled for 3 mn (press the « Lamp test » (9) key again to disable it before 3 mn, if necessary)
7. Start operations 4. to 6. again to test another output
8. Press « Reset » the key (7) to leave the test

15.8 Zone test

Zone test makes it possible to check each connected detector.

Procedure

1. Enable operating access level 2
2. Press 2 times the key "Disable/Test/Enable" (12 to 14) corresponding to the zone to be tested:
   ➔ The yellow led of the zone (26, 28, 30) and the yellow led "Test" (7) flash slowly
   ➔ The yellow led "Disable" (6) lights up fixed
3. Switch a detector to alarm condition and check that the red led (25, 27, 29) corresponding to the tested zone and the red led on the detector flash during 10s end go out automatically
4. Repeat operation 3 for each detector connected on the line
5. Press the key "Disable/Test/Enable" (12 to 14) to end the test

- During the test, no acoustic or output are activated
- When the extinguishing triggering zones are in test condition, the yellow led "Automatic blocked" (16) is activated

15.9 Manual release test

Manual release test makes it possible to check each DM1103-L release button.

Procedure

1. Enable operating access level 2
2. Press 2 times the key "Disable/Test/Enable" (15):
   ➔ The yellow led of the manual release (32) and the yellow led "Test" (7) flash slowly
   ➔ The yellow led "Disable" (6) lights up fixed
3. Trigger a release button and check that the red led (31) corresponding to the tested zone and the red led on the release button flash during 10s end go out automatically
4. Reset the release button
5. Repeat operation 3 and 4 for each release button connected on the line
6. Press the key "Disable/Test/Enable" (15) to end the test

- During the test, no acoustic or output are activated
- When the manual release in tested, the yellow led "Manual blocked" (14) is activated

CAUTION Reset all release buttons before leaving the test condition otherwise the extinguishing process may be triggered (depending on programming).

16 Advanced functions

The functions described in this chapter require to remove the front plastic cover for models XC1001-A and XC1003-A.

16.1 Checksum

This function makes it possible to check if a programming modification was carried out:

1. Enable operating access level 2
2. Enter programming mode
3. Press simultaneously keys “2” and “3” of the numeric keypad:
➔ the checksum appears on the display for 5 seconds
4. Write down the indicated value
5. Leave the programming mode

16.2 Alarm counter

This function makes it possible to show the number of fire alarms:

1. Press simultaneously keys “1” and “2” of the numeric keypad:
➔ The number of alarms appears on the display for 5 seconds

According to standard EN54-2 (paragraph 7.13), this function shall be available at operating access level 1 or 2. Only XC1005-A is compliant to this option.

17 Special functions

The functions described in this chapter must be used only during commissioning and/or maintenance. It is not allowed to use these functions during normal operation. The following access code shall not be delivered to the customer.

17.1 Anticipated Silence Sounders

This function makes it possible to stop/start the Sounders during the pre-warning time.

1. Enable operating access level 2,
2. Press and hold down "Silence buzzer" key (6), then enter the code **2 1 1 2 4 3** on the numeric keypad:
➔ the sounders stop
3. Press the "Silence/Re-sound Sounders" key (5)
➔ the sounders start again

17.2 Anticipated Reset

This function makes it possible to reset the system without having to wait the end of the programmed flooding time.

1. Enable operating access level 2
2. Press and hold down the « Silence buzzer » key (6), then enter the code **2 4 4 2 1 3** on the numeric keypad:
➔ "Pre-warning" time ends immediately and the reset can be carried out

18 Maintenance PC

A PC can be connected with the XC10xx-A equipment to carry out the following operations:

- Programming upload / download
- Event memory upload / download
- Alarm counter reset
- Recording / printing of programming and event memory

Hardware requirement and installation

- MCL-USB (FDUZ221) adaptor to connect between the PC (USB port) and connector X21 of board XCM1002 (follow installation instructions of the drivers delivered with the product)
- XC10 Tool software (to download from Intranet)

19 Components and spare parts

	Reference	Part N°	Description	Remarks
Complete product (*)	XC1001-A	S54390-C1-A1	XC1001-A Extinguishing panel Standard	
	XC1005-A	S54390-C3-A1	XC1005-A Extinguishing panel Comfort	
	XC1003-A	S54390-C2-A1	XC1003-A Extinguishing panel Rack	
Accessories	FCA1014	A6E60500069	FCA1014 Battery holder (XC1005-A with 17A/h)	
	XCA1030	S54390-A5-A1	XCA1030 Multi-zone extension module	
	XCA1031	S54390-A6-A1	XCA1031 Common multi-zone module	
	PF12	FR2:LBE60200447	Cover plate 1U (XC1003-A)	
	PF13	FR2:LBE60200448	Cover plate 2U (XC1003-A)	
	Z3B171	4843830001	Relay module / 1 changeover contact 250 VAC/10 A	
	FCA1007	A6E60500026	FCA1007 kit key switch standard To provide operating access via key switch instead of password.	
Spare parts	XCM1002	S54390-A4-A1	XCM1002 Main board for XC10	
	FCP1004-E	A6E60500054	FCP1004-E power supply unit 3.5A	
	XCH1001-A	S54390-B9-A1	XCH1001-A Cover set for XC1001-A	
	XCH1003-A	S54390-B10-A1	XCH1003-A Cover set for XC1003-A	
	XCH1005-A	S54390-B11-A1	XCH1005-A Cover set for XC1005-A	
	XCA1002-1	S54390-B7-A1	XCA1002-1 Display adapter	
	XCA1002-2	S54390-B8-A1	XCA1002-1 Display adapter	

(*)Without batteries

Siemens Switzerland Ltd
Building Technologies Group
International Headquarters
Fire Safety & Security Products
Gubelstrasse 22
CH-6301 Zug
Tel. +41 41 724 24 24
Fax +41 41 724 35 22
www.sbt.siemens.com