

SV SISTEMI DI SICUREZZA

ITALIA



EXFIRE360

EXLOOP-E – TECHNICAL SPECIFICATION

DATASHEET

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REVISION INDEX

Revision index	Description	Date
Revision 01	Preliminary	27/02/2010
Revision 02	Revised for certification scope	14/06/2010
Revision 03	Revised for certification scope	20/10/2010
Revision 04	Revised for certification scope	22/12/2011

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INDEX

1	GENERAL INFORMATION	4
1.1	CODES AND STANDARDS	4
1.2	DESIGN REQUIREMENTS.....	4
2	TECHNICAL SPECIFICATION OF EXLOOP-E	5
2.1	OPERATING DESCRIPTION OF EXLOOP-E MODULE.....	5
2.2	MAIN CHARACTERISTICS	5
3	VIEW MENU	6
3.1	NORMAL CONDITION	6
3.2	ALARM CONDITION	6
3.3	DISABLED CONDITION	6
3.4	FAULT WARNING CONDITION	6
3.5	TEST CONDITION	6
4	CARD MENU 	7
4.1	CARD DIAGNOSTICS OF EXLOOP-E MODULE	8
5	TECNICAL FEATURES OF I/O SIGNALS	9
5.1	UNSUPERVISED OUTPUTS	9
5.2	OPEN COLLECTOR OUTPUTS.....	9
5.3	APPLICATIONS	9
6	WIRING EXLOOP-E MODULE	10
6.1	CANBUS TERMINAL BOARD	10
6.2	EXLOOP-E TERMINAL BOARD DETAILS.....	10
6.3	CANBUS TERMINAL BOARD EXLOOP-E MODULE	11
6.4	CONNECTION DETAILS.....	11
7	THE HOCHIKI ESP PROTOCOL	12
8	MAINTENANCE	13

1 GENERAL INFORMATION

1.1 CODES AND STANDARDS

Design of hardware and software has been developed according to the following reference standards.

Construction Products Directive (CPD) – Directive 89/106/EEC

“Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products.”

EN 54-2:1997 + A1:2006

“Fire detection and fire alarm systems - Part 2: Control and indicating equipment”

EN 54-4:1997 + A1:2002 + A2:2006

“Fire detection and fire alarm systems - Part 4: Power supply equipment”

EN 12094-1:2003

“Fixed firefighting systems - Components for gas extinguishing systems - Part 1: Requirements and test methods for electrical automatic control and delay devices (only for EX6EV-C card)”

1.2 DESIGN REQUIREMENTS

Mechanical requirements

Environmental classification: Class A -5° +40° C.

Standard Eurocard (160x100) with rack mounting kit.

Manual controls

Manual controls are identified for their specific purpose. Master display is equipped with a graphical symbol to provide access to the menu. By pressing “menu” key, the operator will read the electrical parameters of each channel as well as the diagnostics of the modules.

Visible indications

Alarm, fault and other supervisory or monitoring indications are visible on the Master display, light emitting indicators adjacent to the display and on ModLcd displays installed on each module.

Touch-screen operations on Master display give access to the panel functions (at access levels 1/2/3).

Visible indications are clearly identified at access level 1 for their specific function.

Distinct light indications

Mandatory visible indications could be fully tested through “Test LED” function available at level 1 or 2.

Visible indications are clearly identified at access level 1 for their specific function.

Indications shown on alphanumeric displays

EXFIRE360 panel is designed with an alphanumeric display, which shows system information, and a set of light emitting indicators that provide the following conditions: “Power”, “Alarm”, “Fault”, “Isolate”, “Test”, “Supervisory”, “Output activated”, etc.

The same conditions are repeated on the module’s Lcd displays.

2 TECHNICAL SPECIFICATION OF EXLOOP-E

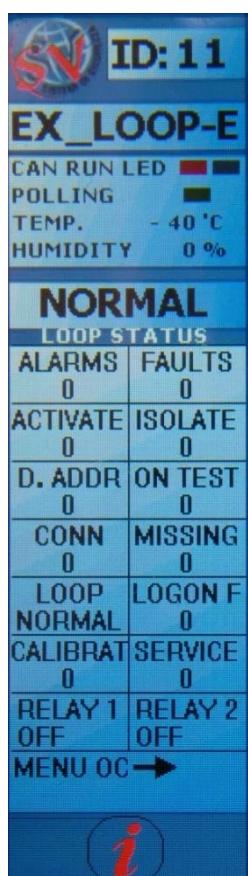
2.1 OPERATING DESCRIPTION OF EXLOOP-E MODULE

EXLOOP-E powers and controls a signaling line circuit, which connects addressable analog and digital ESP protocol devices.

EXLOOP-E shows alarm and fault conditions on the card display, that may occur on signaling line circuit. The maximum number of devices connected to signaling line circuit is 127. Any information from the devices is sent to both the CPU on the module and to CPU360. CPU360 processes the signals, as well as any information from other modules, then sends instructions to EXLOOP-E to activate the command modules (actuators).

After powering on the EXFIRE360 control panel, the EXLOOP-E module checks all the devices connected to the signaling line circuit.

2.2 MAIN CHARACTERISTICS



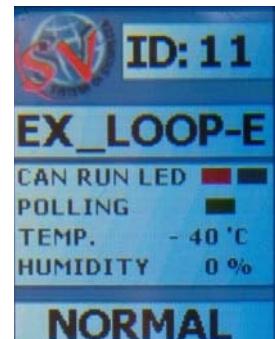
- Self diagnostics
- Hot swap capability (with the panel in operation)
- Automatic addressing of the modules
- Installation on 19" subrack (8 TE) with fixing screws
- Monitoring of card temperature during operation
- Monitoring of card humidity during operation
- Real time supervision of CAN Bus communication
- Monitoring of 24 Vdc/5 Vdc/3.3 Vdc voltages
- Indication of the status of supervised inputs
- Device control also with signaling line circuit open
- Possibility to set the sensitivity of the smoke detectors (high-medium-low)
- Single line control mode
- Continuous channels test
- Function mode programmable by software
- Maximum signaling line circuit current: 500 mA
- Power supply voltage: 22-30 Vdc
- Reading of sensor's analogue value
- Maximum number of devices per signaling line circuit: 127 (depending on devices' current draw)
- N.2 relays on board. Maximum peak current: 4A
- Quiescent current draw at 24 Vdc: 50 mA
- Operating temperature: from -5 to +40°C
- Storage temperature: from -10 to +50°C
- Relative humidity: <= 95% (non condensing)
- Eurocard Dimensions: 160mm x 100mm

3 VIEW MENU

3.1 NORMAL CONDITION

In normal condition, the module display shows:

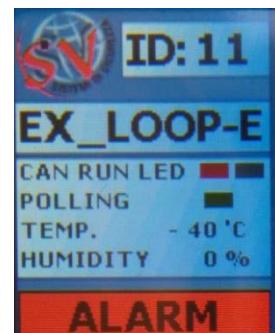
- Card address and identification
- Addressable input devices status
- CAN Bus communication status
- Card temperature and humidity
- Status of unsupervised outputs
- Access to Info menu



3.2 ALARM CONDITION

In fire alarm condition, the module display shows:

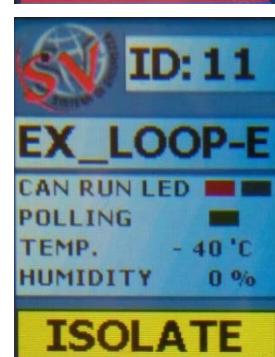
- Status and identification of the device in alarm
- Status and identification of the device in pre-alarm
- Status and identification of the output lines in alarm
- Status of serial communication and transmission problem
- Card temperature and humidity
- Device Lists (connected/alarm/fault/disable devices)



3.3 DISABLED CONDITION

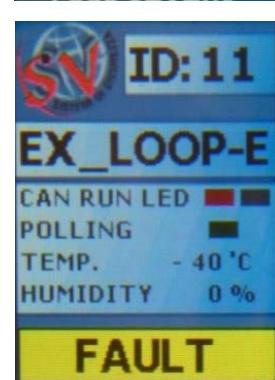
If a circuit or device is disabled, the card display shows:

- Card temperature and humidity
- Identification of the disabled input(s) or output(s)
- Device Lists (connected/alarm/fault/disable devices)



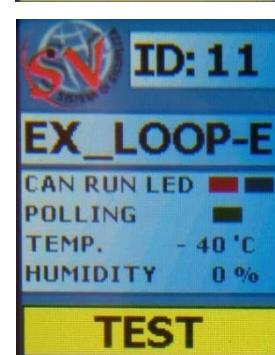
In case of fault, the card display shows:

- Card temperature and humidity
- Fault warning indication, which may correspond to:
 - device fault
 - Can Bus error
 - Fault of a supervised circuit (open/short)
 - Abnormal power supply voltage (24vdc, 5vdc, 3.3vdc)
 - Fault of hardware blocks.
- Device Lists (connected/alarm/fault/disable devices)

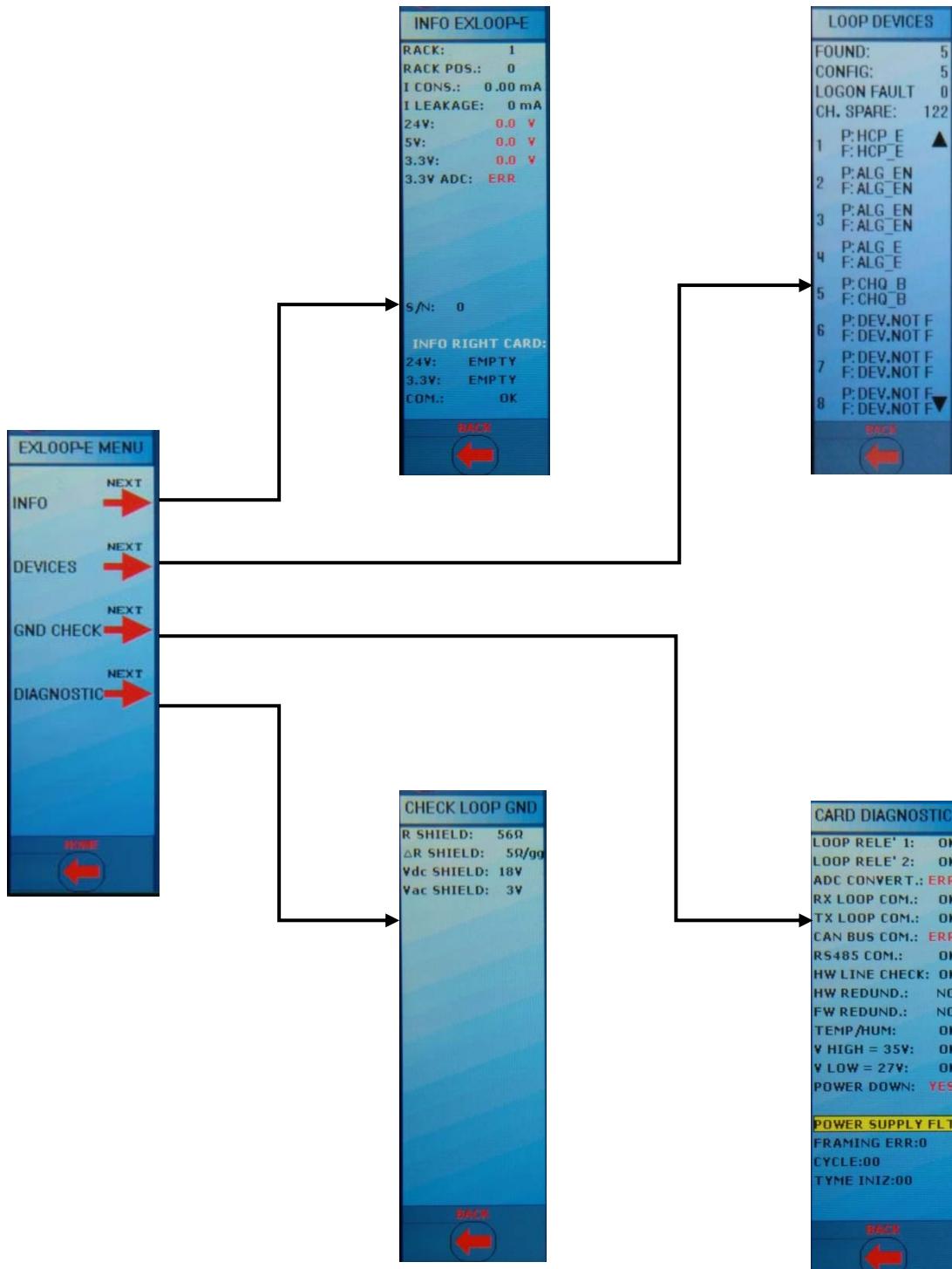


3.5 TEST CONDITION

Test condition is superimposed on other conditions of the module, inhibiting output circuits. Signal priority in the visualisation of messages is: alarm, disabled, fault and test.



4 CARD MENU



4.1 CARD DIAGNOSTICS OF EXLOOP-E MODULE

Card diagnostics menu of EXLOOP-E's front display indicates the following messages:

HARDWARE FAULT OF THE MODULE

ADC 1 CONVERSION	"Analogue to digital conversion (normal status)"
ADC 2 CONVERSION	"Analogue to digital conversion (normal status)"
HW OUT STATUS	"Abnormal status of outputs"
CAN BUS COM	"Communication status of CAN Bus Rx messages"
RS 485 COM	"Communication status of RS485 link"
HW REDUNDANT	"Status of redundant hardware"
BLOCCO HW TEMP/HUM	"Abnormal operation of temperature/humidity sensor"
POWER	"Power supply of the module combined with EXLOOP-E card"

5 TECNICAL FEATURES OF I/O SIGNALS

A isolator device is request every 32 addressable devices in the loop line.

5.1 UNSUPERVISED OUTPUTS

RELAY 01 N.C./N.O. relay for activation of door holders, fire dampers, shutdowns, etc.

RELAY 02 N.C./N.O. relay for activation of door holders, fire dampers, shutdowns, etc..

5.2 OPEN COLLECTOR OUTPUTS

O.C. outputs cannot be used as type "C", "E", "J", "G" (EN 54-1 and EN 54-2), therefore notification appliances, fire alarm and fault warning routing equipment and fire protection systems cannot be connected to these outputs (no line supervision is provided).

Loop alarm output

Loop pre-alarm output

Loop fault output

Activation of relay 1 output

Activation of relay 2 output

Fault devices output

Activated modules output

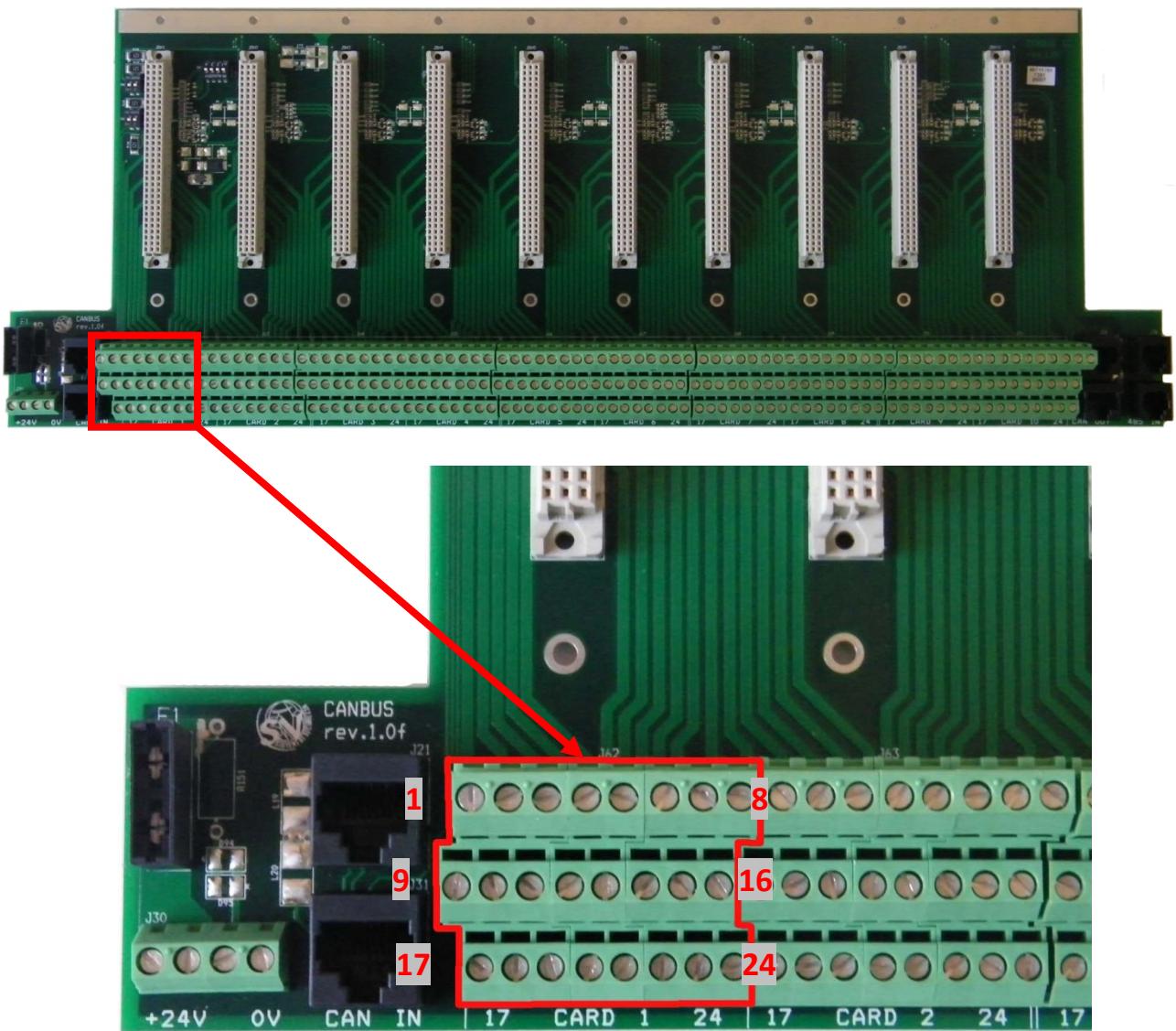
Common

5.3 APPLICATIONS

EXLOOP-E module can be used to control the complete range of the ESP protocol addressable devices.

6 WIRING EXLOOP-E MODULE

6.1 CANBUS TERMINAL BOARD



6.2 CANBUS TERMINAL BOARD DETAILS

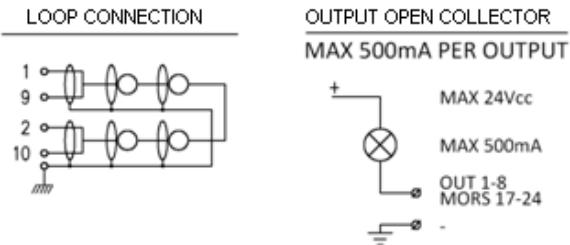
All terminals must have a power limit to ensure that, in case of an external short circuit, there is no damage for heat production. The technical requirements are:

- Input angle: horizontal.
- Maximum operating temperature: 110°C.
- Wire size: AWG 12, 14, 16, 18, 20, 22, 24 – mm² 0.05 - 2.50.
- Maximum current: 17,5A.
- Maximum voltage: 300V.

6.3 CANBUS TERMINAL BOARD EXLOOP-E MODULE

Module	Term.	Level values of programmable functions				Signals Input / Output Open Collector
		Normal	Opening	Prealarm	Alarm	
EXLOOP-E	1					27 - 33 Vdc+ line
EXLOOP-E	2					27 - 33 Vdc+ line
EXLOOP-E	3					Shield
EXLOOP-E	4					Unused
EXLOOP-E	5					Common relay 1
EXLOOP-E	6					Common relay 1
EXLOOP-E	7					Common relay 2
EXLOOP-E	8					Common relay 2
EXLOOP-E	9					27 - 33 Vdc- line
EXLOOP-E	10					27 - 33 Vdc- line
EXLOOP-E	11					Shield
EXLOOP-E	12					Unused
EXLOOP-E	13					Relay 1 NO
EXLOOP-E	14					Relay 1 NC
EXLOOP-E	15					Relay 2 NO
EXLOOP-E	16					Relay 2 NC
EXLOOP-E	17					Open Collector 1
EXLOOP-E	18					Open Collector 2
EXLOOP-E	19					Open Collector 3
EXLOOP-E	20					Open Collector 4
EXLOOP-E	21					Open Collector 5
EXLOOP-E	22					Open Collector 6
EXLOOP-E	23					Open Collector 7
EXLOOP-E	24					Gnd

6.4 CONNECTION DETAILS



7 THE HOCHIKI ESP PROTOCOL

Device type	Supervised input	Unsupervised input	Analog input	Supervised output	Unsupervised output	Note
Photoelectric Smoke Sensor (ALG-EN & ALK-E & ALG-E)	-	-	-	-	-	Loop powered
Multi-Sensor (ACA-E)	-	-	1	-	-	Loop powered
Multi-Heat Sensors (ACB-E /ACB-EW)	-	-	1	-	-	Loop powered
Heat Sensor (ATG-E)	-	-	1	-	-	Loop powered
Manual Call Point (HCP-E, HCP-EW)	-	-	1	-	-	Loop powered
Addressable Base (YCA-RL/3H2)	-	-	-	-	-	Loop powered
Addressable Master Base (YCA-RL/5H2)	-	-	-	-	-	Loop powered
Short Circuit Isolator Base (YBO-R/SCI & CHQ-SCI/DIN)	1	-	-	-	1	Loop powered
Dual Relay Controller (CHQ-DRC & CHQ-DRC/DIN)	1	-	-	-	2	Loop powered
Dual Sounder Controller (CHQ-DSC & CHQ-DSC/DIN)	1	-	-	2	-	External power required
Single Zone Monitor (CHQ-SZM & CHQ-SZM/DIN)	2	-	-	1	-	Loop powered
Dual Zone Monitor (CHQ-Z)	2	-	-	-	-	Loop powered
Intrinsically Safe Compatible Dual Zone (CHQ-Z(IS))	2	-	-	-	-	Loop powered
Dual Input Module (CHQ-DIM & CHQ-DIM/DIN)	-	-	-	-	-	Loop powered
Single Input Module (CHQ-SIM)	1	-	-	-	-	Loop powered
Base Sounder (YBO-BS)	-	2	-	-	-	Loop powered
Base Sounder Beacon (YBO-BSB)	-	-	-	-	1	Loop powered
Addressable Beacons (CHQ-AB Range)	-	-	-	-	1	Loop powered
Addressable Remote Indicator (CHQ-ARI)	-	-	-	-	1	Loop powered
Wall Sounder (CHQ-WS2 and variants & CHQ-BS)	-	-	-	-	2	Loop powered
Wall Sounder Beacon (CHQ-WSB)	-	-	-	-	2	Loop powered
Single input/output module (CHQ-SIO)	1				1	Loop powered
Multiple input/output module (CHQ-FIO)	5-8		0-3		8	Alim. Est.
Ionization Smoke Sensor (AIE-E)	-	-	1	-	-	Loop powered
Powered Output module (CHQ-POM & YBO-POM)	2	-	-	1	-	Loop powered

8 MAINTENANCE

It is possible connect and disconnect EXLOOP-E when the EXFIRE360 control panel is running. A fault message is shown by EXFIRE360, because there is not communication with the disconnected module.

After a delay of 30 seconds the EXLOOP-E could be reconnected, because the on board electronic is not pre-charged. When the EXLOOP-E is connected, the EXFIRE360 control panel will identify the unique code and the fault message will be restored.