

**DI09**

# **FIRE DETECTION**

## **MARINE CONVENTIONAL 4 ZONES PANEL** Wheelmark Approval



## **INSTALLATION AND USER'S MANUAL**

**ENGLISH**

NAVIGUEZ EN TOUTE SÉCURITÉ  
SAIL SAFELY - NAVEGAR CON TODA TRANQUILIDAD

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## Versions

Indice	Date	Description	Page(s)
0	07/06/2010	Document creation	All
1	12/10/2010	New front face ( « ? » replaced by Alarm General)	7, 16, 20
2	08/03/2012	Explanations about electrical faults E1, E2, E3, E4 et E5	19
4	31/07/2015	Correction for siren output	4,8
5	29/12/2015	Update of diagrams & summary	2, 25, 26

# 1. DEFINITIONS

C.I.E.	:	Control and Indicating Equipment (EN54-2 standard).
Detection loop	:	2 wires cable connecting points to the C.I.E.
Zone	:	Geographic regrouping of 1 to 10 points.
Conventional mode	:	C.I.E. working mode that allows only <u>zone</u> indication of any fire alarm or fault.
Fault	:	C.I.E. state when detection or electrical fault(s) is (are) detected.
EEPROM	:	Internal non volatile component that stores C.I.E. configuration and event log.
Acknowledge	:	Manual operation that stops audible indication of any fire alarm or fault.
Reset	:	Manual operation that stops visible indication of any fire alarm or fault.
Navigation arrows	:	Set of 4 (context dependant) keys located just under the alphanumeric display of the C.I.E.
M.C.P.	:	Manual call point.

## 2. PRESENTATION

### 2.1 TECHNICAL CHARACTERISTICS

#### HOUSING

DIMENSIONS	: front face: 169 x 168mm, cabinet 137 x 128 x 40mm
MATERIAL	: ABS
CABLES INPUT	: Terminals blocks
PROTECTION	: I.P. 44
WEIGHT	: 0.5 Kg

#### POWER SUPPLY

MAIN POWER SUPPLY	: 24VDC, -25% +30%
EMERGENCY POWER SUPPLY	: 24VDC, -25% +30%
THIRD SOURCE	: 12VDC with supplied cell (1 x MN21)
CONSUMPTION	: 0.2A nominal, 0.5A max.
PROTECTIONS	: diodes and resetting fuses 1.2A

#### DETECTION LINES

LINES CAPACITY	: 4 zones
ZONE CAPACITY	: 1 to 10 detectors per section (total detectors: 40)
MAX. CABLE LENGTH	: 300 meters
CURRENT PER LOOP	: 8mA nominal, 60mA max.
PROTECTIONS	: diodes

#### ASSOCIATED STANDARD DETECTORS

: optical smoke detectors
: heat detector (55°C, 65°C or 80°C maxi., static or rate of rise)
: multisensor (combination of optical smoke and heat detector)
: manual call point (IP 53)

#### ASSOCIATED I.S. DETECTORS

(Intrinsically Safe)

: optical smoke detectors
: heat detector (50°C, 65°C, 80°C, static or rate of rise)
: wheatherproof intrinsically safe manual call point (IP 65)
- all detectors are EN 54, Bureau Veritas approved
- standard and wheatherproof bases are available for all detectors.

#### INPUTS / OUTPUTS

« EXTERNAL SIREN » OUTPUT	: 24V, monitored (200mA max), to transfer the audible signal of the C.I.E.
« FIRE » OUTPUT	: normally open dry contacts, not monitored, (0.35A max, not protected), programmable <i>Default configuration: immediate fire output without acknowledgement N.O.</i>
« FAULT » OUTPUT	: normally closed dry contacts, not monitored, (0.35A max, not protected), programmable <i>Default configuration: immediate fault output without acknowledgement N.C.</i>
« RS485 » OUTPUT	: programmable protocol: V.D.R. (NMEA 0.183 sentences (IEC 61162-120)), modbus
« GENERAL ALARM » OUTPUT	: normally open dry contact, not monitored, (0.35A max, not protected), which allows to make general alarm signal (7 short pulses, 1 long pulse) every minutes.

#### MISCELLANEOUS

CABLE USED	: marine approved (depends on classification society) shielded pair, 0.75mm <sup>2</sup> minimum
MAXIMUM VOLTAGE ON ALL CABLES	: 24VDC, -25% +30%
DISPLAY	: LEDs + graphic backlighted LCD (8*20 characters)
USER LANGUAGES	: English, French, Spanish
KEYBOARD	: 6 integrated keys
EARTH FAULT DETECTION	: permanent, with audible and visible alarm when Z<10 Kohms
ACCESS LEVELS	: 2 different 3 digits passwords for level 2, level 3
C.I.E. DISABLEMENT FUNCTION	: level 2 function that allows 3 <sup>rd</sup> source disablement before voluntary powering off.
ANALOGUE VALUES	: zone current measure : 12VDC cell voltage monitoring with audible and visible alarm when V<10VDC

## 2.2 STANDARDS AND APPROBATIONS

Present product is a marine conventional fire detection and alarm panel designed and tested in compliance to following documents:

- Applicable European standard: «Fire detection and fire alarm system – Control and indicating Equipment », EN54-2 (12/97) + A1 (01/07)
- Bureau Veritas “Rules for the classification of steel ships, part C, chapter 3-6-2”, 01/2003.

*Comment:*

In all documentation, “C.I.E. “will be used to designate the fire detection and alarm panel.

### **EN 54-2 mandatory functions**

FIRE ALARMS  
 FAULT ALARMS  
 ZONE ENABLING  
 ZONE DISABLING  
 AUDIBLE AND VISIBLE INDICATIONS TEST  
 OUTPUTS TEST

### **EN 54-2 not mandatory functions**

USER LANGUAGE SELECTION	: English, French, Spanish
C.I.E. DISABLEMENT FUNCTION	: level 2 function that allows 3 <sup>rd</sup> source disablement before voluntary powering off.
ANALOGUE VALUES	: zone current measure : 12VDC cell voltage monitoring with audible and visible alarm when V<10VDC : analogue values display of detectors

### **EN 54-2 optional functions provided**


TOTAL LOSS OF POWER

### **EN 54-2 optional functions not provided**


OUTPUTS TO FIRE ALARMS DEVICES  
 CONTROL OF FIRE ALARM ROUTING EQUIPMENT  
 OUTPUTS TO FIRE PROTECTION EQUIPMENT  
 DELAY TO OUTPUTS  
 DEPENDENCIES ON MORE THAN ONE SIGNAL  
 ALARMS COUNTER  
 FAULT SIGNAL FROM POINTS  
 OUTPUT TO WARNING FAULT ROUTING EQUIPMENT  
 DISABLEMENT OF ADDRESSABLE POINTS  
 TEST CONDITION  
 STANDARDIZED INPUT/OUTPUT INTERFACE



### 2.3 VISIBLE INDICATIONS

- |  |   |
|--|---|
| 1: « POWER ON » green led  | : ON when C.I.E. is powered (from main or emergency source)   |
| 2: « SYSTEM FAULT » yellow led   | : ON when an internal system fault is detected (missing or faulty hardware / software)  |
| 3: General « FIRE » red led  | : ON when at least one point in fire alarm<br>( <i>flashing when not acknowledged, else continuous</i> )  |
| 4: General « FAULT » yellow led  | : ON when at least one of following faults is detected<br>( <i>flashing when not acknowledged, else continuous</i> )<br>- main power supply off<br>- emergency power supply off<br>- detection fault (faulty point, detection loop open or short-circuited)<br>- external siren output fault (loop open or short-circuited)<br>- earth fault (abnormal current leakage between 24VDC and earth) |
| 5: General « DISABLEMENT » yellow led  | : ON when at least one zone is disabled   |
| 6: 3 <sup>rd</sup> source enabling / General Alarm button                                      | : <i>short press</i> : disable 3 <sup>rd</sup> source<br>: <i>long press</i> : start general alarm signal   |
| 7: LCD display   | : 8 lines of 20 characters, with automatic led backlight (alarm or key use)   |
| 8: Navigations arrows  | : allows to unfold menu   |
| 9: «  » key | : allows to acknowledge fire/ fault or to enter in a menu   |

### 2.4 AUDIBLE INDICATIONS

The C.I.E. is equipped with an internal electronic buzzer. It is activated in intermittent mode when at least one fire alarm is detected and in continuous mode when at least one fault is detected. Audible fire alarm has always priority upon fault alarms. Fire alarms and faults can be silenced at level access 1, pressing  key. Any new fire alarm or fault will initiate a new audible indication.

#### Important:

Sound level of internal buzzer is at least 85dB (@ 1m). If this level is not enough taking account of environmental conditions of use, it's essential to connect an external audible device to "EXTERNAL SIREN" output.



## 3. WORKING PRINCIPLES

### 3.1 POWER SUPPLIES

The C.I.E. is powered with 2 different sources:

Main power supply source : 18 to 32VDC, 0.5A max.  
Emergency power supply source : 18 to 32VDC, 0.5A max.

Changeover from main to emergency source is automatic when main source is absent or faulty (with audible and visible alarm).  
Changeover from emergency to main source is automatic as soon as main power supply voltage is re-established.

### 3.2 CONVENTIONAL MODE

The C.I.E. is intended for monitoring associated detectors wired on 4 electric lines of up to 10 points.  
DI09 fire detection panel works using conventional mode: it gives informations coming from detection zones.  
Informations of faults and fire alarms are always associated with the zone name (user configurable field of 20 alphanumerical characters).

### 3.3 FUNCTIONAL CONDITIONS

#### FIRE ALARM CONDITION

The function of the C.I.E. is to generate audible and visible alarm when a point has detected an environmental parameter evolution consecutive to a fire (smoke, heat, flame or combination of these parameters) or after manual call point use.

Fire alarm is identifiable by intermittent audible indication (frequency 2 hertz) and visible indication by the general « FIRE » red led and LCD display of zones in alarm).

Fire alarm must be silenced by  key, and cancelled by (SYSTEM / RESETTING /  ) when cause has disappeared.

#### FAULT CONDITION

In order to be operational permanently, the C.I.E. can inform user of any fault by generating alarms in following cases:

- Detection loop short-circuited
- Detection loop open > cable cut
- Sensor absence > no sensor in mounting base
- Main power supply fault > missing or insufficient voltage
- Emergency power supply fault > missing or insufficient voltage
- C.I.E. not powered > neither main, nor emergency power source
- Third source fault > missing or insufficient voltage of internal cell
- Earth fault > current leakage between 24VDC and earth (Z < 10 Kohms)
- External siren output fault > open line or short-circuited on « EXTERNAL SIREN » output
- System fault > internal hardware or software fault

Faults are identifiable by intermittent audible indication (frequency 2 hertz) and visible indication by the general « FAULT » yellow led and LCD display of fault).

Fault must be silenced by  key, and cancelled by (SYSTEM / RESETTING /  ) when cause has disappeared.

#### DISABLED CONDITION

It's possible to disable any detection in a specified zone in order to operate on it or before predictable alarms (e.g. soldering, defective sensors). Re-enabling of disabled zone is manual.

This function is reserved to level 2 users.

Disabled condition is identifiable by visible indication by the general « DISABLED yellow led). This indication is activated the following condition is verified:

- at least one zone has been disabled.


#### QUIESCENT CONDITION

C.I.E. is equipped of a « POWER ON » green led which is switch on when the C.I.E. is supplied. Quiescent condition is active only when there is no other active condition neither Fire, nor Fault, nor Disabled condition.

It quickly gives indication to user that the C.I.E. is in normal working conditions.

### 3.4 OUTPUTS

#### « EXTERNAL SIREN » output

Output designed to transmit the *audible* alarm indications of the C.I.E. to external devices like sirens; sounders, beacons located in different areas on the vessel. It is always activated in continuous mode, exactly like internal buzzer, and may be acknowledged by pressing the  key.



**This output is 24VDC/0.2A max., polarised, protected, monitored thanks to a 2K2 resistor to be placed at the end of the line.**

#### « FIRE » output

Normally open dry contacts output (capacity 0.35A/24VCC), activated when there is at least one fire alarm.

This output returns to normal state (closed contacts) only when all fire alarms have been cleared.

Activation options of this output is user programmable (from C.I.E.) among following possibilities:

Source : Fire  
 Acknowledge : yes / no  
 Direction : N.O. / N.C.

*Any delay on this output causes a failure to comply with EN 54-2 norm.*

#### « FAULT » output

Normally closed dry contacts output (capacity 0.35A/24VCC), activated when there is at least one fault condition.

This output returns to normal state (closed contacts) only when all fault alarms have been cleared.

Activation options of this output is user programmable (from C.I.E.) among following possibilities:

Source : Fault  
 Acknowledge : yes / no  
 Temporization : 0 to 255 seconds

*Any direction change and source change on this output causes a failure to comply with EN54-2 norm.*

#### RS485 output

Numerical output (+3V3 / - 3V3 signals) designed to report informations from C.I.E. to an external device (V.D.R., synoptic panel, monitoring) up to 100 meters.

Imperatively use RS485 dedicated cable (shielded twisted pair, 0.5mm<sup>2</sup> minimum)

#### General Alarm output

Normally open dry contacts output (capacity 0.35A/24VCC). This output generates the general alarm signal (7 shorts pulses and 1 long pulse) every minute.



## 4. INSTALLATION

### TO BE READ CAREFULLY BEFORE BEGINNING INSTALLATION

To preserve product approvals and ensure normal working, it is essential to respect recommendations included in the present manual. In particular, Marinelec Technologies wiring diagram must be strictly respected, and only multi-wires shielded marine approved cables must be used (0.75mm<sup>2</sup> mini.).

#### 4.1 LOCATION OF THE C.I.E.

Mechanical overall drawing of the C.I.E. is given in appendix. (« DI09\_MEC\_REV0»).

Location of the cabinet is essential for easiness of use and maintenance. Following elements must be taken into account:

☺ Advisable locations:

- In the navigation bridge.
- To be agreed with users.
- At normal user height.
- Built in.
- Check available depth before cutting.
- As vertical as possible.
- In conformity with specific regulation(s).

☹ Not advisable locations:

- Horizontal position or highly inclined.
- Close by sources of important electromagnetic radiations (BLU, VHF, etc.)
- Direct exposure to: sun, heat sources.
- Direct exposure to mechanical impacts.
- Direct exposure to projections of liquid, fuel, steam, water, coffee...

#### 4.2 LOCATION OF THE DETECTORS

Mechanical overall drawing of detectors is given in appendix. (« CAB CO DETECT TRI REV2»).

Intrinsically safe security detectors bases are different from standard bases.

Location of detectors and manual call points is essential for the efficiency of fire detection. Following elements must be taken into account:

☺ Advisable locations:

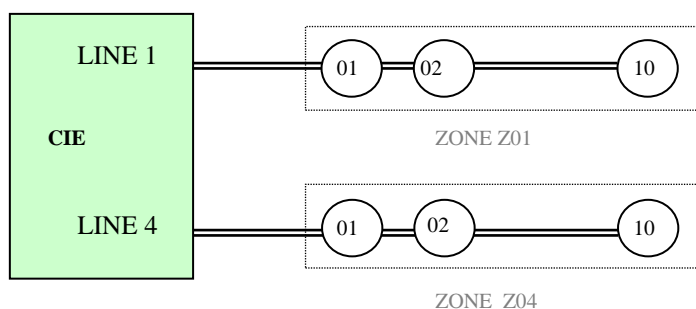
- On ceilings free of draught
- At the highest point of the local, taking care to avoid installing them behind elements likely to hinder satisfactory operation.
- Built in or projecting mounting are possible.
- Location and type of detector requires a study of every risk factor and environmental conditions
- In conformity with specific regulation(s).
- Orientation of detector is important to ensure integrated alarm led to be visible.

☹ Not advisable locations:

- Do not mount automatic detectors on walls.
- Use of smoke detectors is not advisable in specific spaces (e.g. kitchen, badly ventilated engine rooms).

### 4.3 DETECTION ZONES

Zone definition	: 1 zone = regrouping of 1 up to 10 detectors of the same detection line.
Zone identification	: name on 20 alphanumeric characters (e.g.: « ENGINE ROOM »)
Zones number	: 1 to 4 zones, each comprising 1 up to 10 points.
Detector's repartition	: in conformity with your classification society. : install intrinsically safe detectors only after zener barriers.



### 4.4 ELECTRICAL CONNECTION

Wiring diagram is given in appendix. (« DI09\_CAB\_TRI\_APO\_REV0 », « DI09\_CAB\_TRI\_DEF\_REV0 », « CAB CO DETECT TRI REV2 »)  
Respect following instructions to ensure normal operation of the C.I.E..

#### E.M.C. precautions:

- use only marine approved shielded and marked (polarity) cable, 0.75mm<sup>2</sup> mini.
- connect the screen in conformity with wiring diagram:
  - > at each side (input and output) of all points, thanks to specific “earth” terminals.
  - > to the cabinet, with the provided connection piece on rear plate of the C.I.E. and rings.
  - > to the ship’s general earth point with a high section (6mm<sup>2</sup>) copper wire.

#### Power supply wiring:

- The C.I.E. must be supplied with 2 separated sources (main and emergency). Automatic changeover is executed by the C.I.E..
- Power sources must be kept using the on-board electrical generators.
- Power supply cables must be separated and exclusively used for fire detection.

#### General comments:

- Cables must not run through high any risk area.
- Cables must not run close to interferences sources (high power commutation switches, radios (VHF / BLU), generators...)
- Wire section must be in correspondance with supplied pluggable terminals (1 mm<sup>2</sup>.max.)
- Carefully check electrical connections of the C.I.E. and all connected devices.

## IMPORTANT NOTE: LIMITING THE CONSEQUENCES OF FAULTS

EN 54-2/A1 standard requires that installation of fire detection systems are designed and installed in order to limit the consequences of faults that may occur on fire detection loops. Following measures should be taken in order to achieve this requirement:

- \* limit the quantity of detectors and manual call points connected to the same loop (10 max.)
- \* connect detectors installed in high-risk areas on dedicated loops
- \* carefully select cable trays avoiding high-risk sections
- \* respect requirements of classification societies and/or national authorities in charge of the ship
- \* keep a set of spare parts onboard, including detectors and manual call points of each type installed
- \* keep a set a test tools (spray tester, pole...) in working order
- \* ensure suited training to the crew concerning the use, test and maintenance of the complete system

## 4.5 PRELIMINARY CHECKINGS

Before first powering, check following points

- Conformity and quality of the wiring (polarities, screwing, marking...).
- Presence of all detectors in their base
- Continuity and short-circuit free of all detection loops.
- Presence of end of line resistor (2K2 Ohms provided with C.I.E.) on each monitored output: « EXTERNAL SIREN».
- Measure value of main and emergency power source voltages. **You must use 24VDC to power the C.I.E.**



Slot always upward

3rd SOURCE :  
1x MN21 (12VDC)

Connection point of  
the electrical ground  
(earth fault detection)



Always ensure that the battery is run with the slot facing up (see picture above)


## 4.6 FIRST USE

When powered up, the C.I.E. starts automatically and executes following actions

- \* audible « beep » for power up confirmation.
- \* Front face LEDs test.
- \* User configuration reading in EEPROM
- \* Detectors integrated led test
- \* Power up delay for detectors initialization
- \* Detectors scan
- \* Fire alarms and faults update.

Following screen must then be displayed:



During the starting period, if the user pushes  touch, the EEPROM which contains the settings (zones names...) will be erased.

## 4.7 PASSWORD

During your navigation, you will have to enter levels passwords.



Place cursor under the character to modify with or .  
Press to insert desired character displayed in reverse video

Then press to validate

### Comments:

Level 2 password: '222'

Level 3 password: '333'

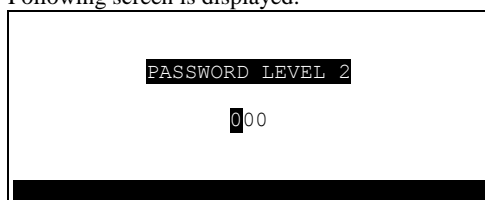
## 4.8 MODIFY LEVEL2 PASSWORD

This function allows the user to modify the level 2 password (which is '222' by default).

Procedure (from quiescent screen):



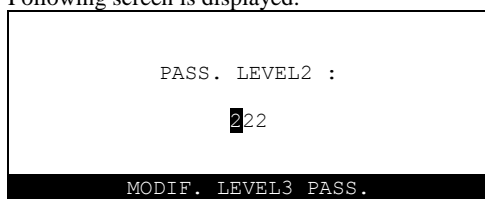
Following screen is displayed:



Place cursor under the character to modify with or .  
Press to insert desired character displayed in reverse video

Then press to validate

Following screen is displayed:



Place cursor under the character to modify with or .

Press to insert desired character displayed in reverse video

Repete last operation for all characters and terminate by

New password is automatically saved in EEPROM memory.

Use to exit of the menu.

## 5. CONFIGURATION

All these functions are level access 3 functions.

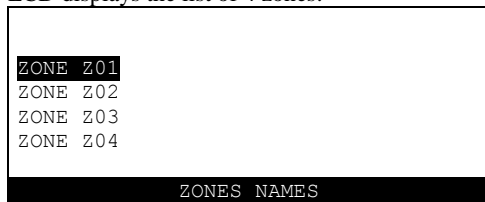
### 5.1 NAMES ZONES

This operation consists in modifying the name of a zone. Name is a field of 20 alphanumeric characters.

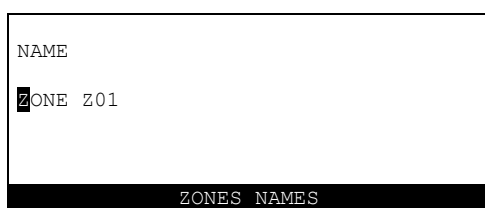
Procedure (from quiescent screen):



LCD displays the list of 4 zones:



Select the zone to modify with and .



Place cursor under the character to modify with or .

Press to insert desired character displayed in reverse video

Repete last operation for all characters and terminate by .

New name is automatically saved in EEPROM memory.

Repete operation for all zones.

Use to exit of the menu.

*Comments:*

Available characters ('A' to 'Z', ' ') and ('0' to '9').

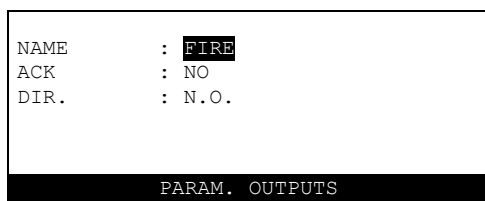
Use space character to clear a character.

All characters are in capital letter.

### 5.2 CONFIGURE OUTPUTS

Function that allows the user to configure outputs according to specific needs.

Procedure (from quiescent screen):



Select output to modify with .




**“FIRE” OUTPUT:**


Dry contacts (0.35A max/24VDC) user programmable output. Contacts are always open when C.I.E. is not powered. Following options are available for this output:

Type : FIRE (unmodifiable)  
**Delay : 0 second (unmodifiable, else it causes a failure to comply with EN54-2)**  
 Acknowledge : YES / NO (yes: output de-activated on buzzer acknowledge. / no: output de-activated on alarm or fault reset.)  
 Direction : N.O. / N.C. (N.O.: Normally Open / N.C.: Normally Closed)  
 : ! Whatever direction is selected, output is always N.O. when C.I.E. is not powered.

NAME	: FIRE
ACK	: NO
DIR.	: N.C.

PARAM. OUTPUTS

Select desired options with   .  
 Change field to modify with  .

Use  to exit of the menu.




**“FAULT” OUTPUT:**


Dry contacts (0.35A max/24VDC) user programmable output. Contacts are always open when C.I.E. is not powered. Following options are available for this output:

Type : FAULT (unmodifiable, else it causes a failure to comply with EN54-2)  
 Delay : 0 to 255 seconds  
 Acknowledge : YES / NO (yes: output de-activated on buzzer acknowledge. / no: output de-activated on alarm or fault reset.)  
**Direction : N.C. (N.C.: Normally closed, unmodifiable, else it causes a failure to comply with EN54-2)**  
 : ! Output is always N.O. when C.I.E. is not powered.

NAME	: FAULT
TYPE	: FAULT
DELAY	: 0S
ACK	: YES

PARAM. OUTPUTS

Select desired options with   .  
 Change field to modify with  .

Use  to exit of the menu.

Note : A long push on  allows to reset the delay.

**RS485 OUTPUT:**

Output designed to report all fire and fault informations from the C.I.E. to another equipment (V.D.R., alarm panel, supervision...) over long distance.

Procedure (from quiescent screen):


 / **SYSTEM** / **SETUP** / **OUTPUTS** / **RS 485** / 

MODBUS
VDR


RS 485

Contact Marinelec Technologies for details on other options.


Select desired option with   then  .

Use  to exit of the menu.

Sum up of outputs settings:

OUTPUTS	TRIGGERING	TEMPORIZATION	ACKNOWLEDGMENT	DIRECTION	OTHERS
EXTERNAL SIREN	FIRE, FAULT, ELECTRICAL FAULTS	NO	YES		PROVIDED 24VDC
FIRE OUTPUT	FIRE	NO	CONFIGURABLE	CONFIGURABLE	PROVIDED A DRY CONTACT
FAULT OUTPUT	FAULT	YES (UP TO 255s)	CONFIGURABLE	N.C.	PROVIDED A DRY CONTACT
RS485					NMEA0183 OR MODBUS
GENERAL ALARM	LONG PUSH ON  TO GENERATE GENERAL ALARM SIGNAL	0s		N.C.	PROVIDED A DRY CONTACT

Settings by default

OUTPUTS	TRIGGERING	TEMPORIZATION	ACKNOWLEDGMENT	DIRECTION	OTHERS
EXTERNAL SIREN	FIRE, FAULT, ELECTRICAL FAULTS	0s	YES		PROVIDED 24VDC
FIRE OUTPUT	FIRE	0s	NO	N.O.	PROVIDED A DRY CONTACT
FAULT OUTPUT	FAULT	0s	NO	N.C.	PROVIDED A DRY CONTACT
RS485					NMEA0183 OR MODBUS
GENERAL ALARM	LONG PUSH ON  TO GENERATE GENERAL ALARM SIGNAL	0s		N.C.	PROVIDED A DRY CONTACT



### 5.3 MODIFY USER LANGUAGE

User language is user programmable among: English, French, Spanish.



Procedure (from quiescent screen):

 / SYSTEM / SETUP / PERSONNALIZATION / LANGUAGE / 

Following screen is displayed:

```

CURRENT LANGUAGE :
ENGLISH
LANGUAGE
  
```

Select desired language with .  
Use  to exit of the menu.

### 5.4 MODIFY LEVEL3 PASSWORD

This function allows the user to modify the level 3 password (which is '333' by default).



Procedure (from quiescent screen):



 / SYSTEM / SETUP / PERSONNALIZATION / MODIF. LEVEL3 PASS. / 


Following screen is displayed:

```


PASS. LEVEL3 :
333
MODIF. LEVEL3 PASS.
  
```

Place cursor under the character to modify with  or .

Press   to insert desired character displayed in reverse video

Repete last operation for all characters and terminate by 

New password is automatically saved in EEPROM memory.

Use  to exit of the menu.

### 5.5 DISABLE BEEP BUTTON

This function allows the user to deactivate the "beep" sound produce when the user presses a button.


Procedure (from quiescent screen):


 / SYSTEM / SETUP / PERSONNALIZATION / DISABLE BUTTON BEEP / 

Following screen is displayed:

```

BEEP BUTTONS :
ENABLED
DISABLED BEEP BUTTONS
  
```

Change field to modify with .

Use  to exit of the menu.

## 6. CHECKING

« CHECKING » menu regroups functions intended to verify correct configuration of the C.I.E..

### 6.1 LED's TEST

This function switches on all LEDs of the panel for 2 seconds (in day mode).

Comment: Internal buzzer is automatically tested (« beep ») each time a key is pressed by user.

Procedure (from quiescent screen):



This test lasts few seconds, then LCD returns to « CHECKINGS » menu and normal LEDs state is restored.

### 6.2 OUTPUTS TEST

This level access 2 function activates all outputs of the C.I.E. for 2 seconds, then returns to initial state

#### ! Caution !

Verify nature and position of devices connected to all outputs in order to prevent dangerous inopportune activations (fire doors, sprinklers..)

Procedure (from quiescent screen):



This test lasts few seconds, then LCD returns to « CHECKINGS » menu and normal LEDs state is restored.


### 6.3 LOOPS MEASURES

This function displays values of currents across each detection line:

Procedure (from quiescent screen):



Z1	:	8.9 MA
Z2	:	8.8 MA
Z3	:	8.7 MA
Z4	:	9.0 MA
CELL	:	11.9 V
LOOPS MEASURE		

Use  to exit of the menu.

## 7. USE

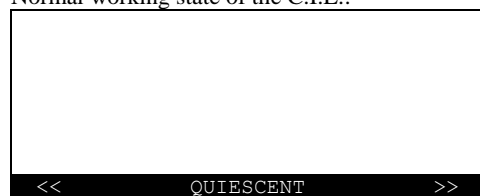
Normal C.I.E. state is the quiescent condition. As soon as a fire alarm or fault is detected, the C.I.E. Quiescent condition is stopped and Fire or / and Fault condition is activated. LCD displays details on each condition.

Fire alarm indications have always priority upon faults or others indication: Fire alarms screen is automatically displayed after 20 seconds when at least one Fire alarm is present.

Whatever screen displayed, number of zone and points in fire alarms, faulty zone and points and electrical faults are permanently displayed on the first line of the LCD. Different conditions are detailed hereafter:

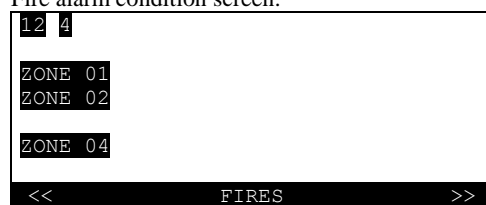
### 7.1 QUIESCENT CONDITION

Normal working state of the C.I.E.:



### 7.2 FIRE ALARMS

Fire alarm condition screen:



- > Zone Z01 is in fire alarm
- > Zone Z02 is in fire alarm
- > Zone Z04 is in fire alarm

Top of the screen allows to display the number of zone(s) in alarm(s).

### 7.3 DETECTION FAULTS

Fault condition screen (detection faults):

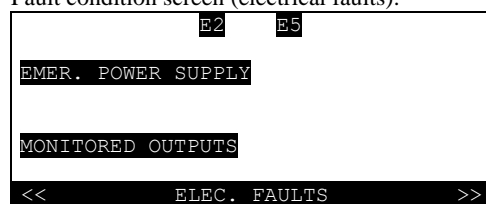


- > Zone Z03 is in fault

Top of the screen allows displaying the number of zone(s) in fault condition. This indication is common with disabled status indication. To differentiate the both status, a number of zone is blinking when it's in fault status and is steady when it's in disabled status.

### 7.4 ELECTRICAL FAULTS

Fault condition screen (electrical faults):



- > E1: Main power supply fault: Fault if main source voltage < 21.5V
- > E2: Emergency power supply fault: Fault if emergency source voltage < 18V
- > E3: Cell fault: Fault if third source (1x12V cell) voltage < 10V
- > E4: Earth leakage fault: Fault if Resistance (24VCC / Earth) < 10Kohms
- > E5: Monitored output fault: Fault if at least one monitored line is open or short-circuited


Top of the screen allows to display the number of electrical fault(s).

*Comment:*

*All these faults have an audible and visible acknowledgeable alarm*

## 7.5 ALARMS AND FAULTS ACKNOWLEDGEMENT


Acknowledgment consists in silencing audible indications of any fault or fire alarm.

This operation is accessible at level access 1, simply with  key.

The internal buzzer and all acknowledgeable output are then stopped and leds stop flashing.


## 7.6 ALARMS AND FAULTS RESET

Reset consists in clearing visible indications (LEDs + LCD) of any fault or fire alarm, when causes have disappeared.

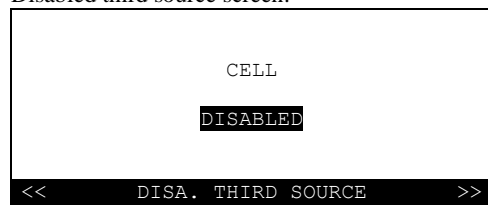
This operation is accessible at level access 2, with ( **SYSTEM** / **RESETTING** /  ) key and inputting level 2 password. All indications of resetted faults and alarms are then cleared, as well as not acknowledgeable outputs.


## 7.7 VOLOUNTARY DISABLEMENT OF THE C.I.E.

When the C.I.E. is not powered, a third internal source of power (1x 12VDC cell) is provided to warn user, through buzzer. User can de-activate this function of the following way:

- Press (  ) key (when not is menu) and enter level access 2 password.

Disabled third source screen:



Use  to exit of the menu.

After power up, third source is always activated (no memory)

Third source voltage is permanently monitored and a « CELL » fault is generated when the voltage is too low (voltage < 10VDC)

## 7.8 DAY / NIGHT MODE

LEDs and LCD backlight can be activated in 2 different light intensities:

- Night mode : minimum light intensity, default mode
- Day mode : maximum light intensity, automatically activated upon:
  - any alarm or fault apparition or
  - key use (with automatic return to night mode after 45 seconds of keyboard inactivity).

## 7.9 DISABLED ZONE

This menu regroup functions allowing user to disable or re-enable selected zones (useful in case of predicatble alarms, faulty loop...)

### DISABLE OR ENABLE ZONE


Display the status of detection zones (enabled or disabled). This is a level 2 password function.

Procedure (from quiescent screen):

 / SYSTEM / DISABLED / ENABLE / DISABLE / 

2	
ZONE 01	EN
ZONE 02	DIS
ZONE 03	EN
ZONE 04	EN
ENABLED / DISABLE	

Select the zone to enable or disable with   then enabled or disabled with 

Use  to exit of the menu.

### LIST DISABLED ZONES

Modify the status of a detection zone.

Procedure(from quiescent screen):

 / SYSTEM / DISABLED / LIST DISABLED ZONES / 

Zones list screen:

2	
ZONE 02	
LIST DISABLED ZONES	

> ZONE 02 is disabled

## 8. MAINTENANCE

### 8.1 PERIODICAL MAINTENANCE






- Execute functional test of the installation every week. Special aerosols may be delivered to test efficiently and quickly all optical detectors. Contact Marinelec Technologies.
- Replace internal 3rd source every year or, as soon as alarm occurs.  
(1x 12V « MN21 » cell located on « DI09 » P.C.B., C.I.E. must not be powered during replacement.)
- Detectors should be changed every 10 years or earlier if environmental conditions are severe (damp heat, dust...)

### 8.2 TROUBLESHOOTING HELP

This chapter lists the various functions of the DI09 for assistance in troubleshooting and maintenance of the fire detection panel.

#### ! Caution !

Verify nature and position of devices connected to all outputs in order to prevent dangerous inopportune activations (fire doors, sprinklers)

SUBJECT	FOR TROUBLESHOOTING	HANDLING	REFERENCE
Interface test : (Monitor screen, keyboard,...)	General malfunction	 / SYSTEM / CHECKINGS / LEDS TEST /	Chap 6.1
Outputs test	malfunction: - « detection faults» - « fire alarms» - « electrical faults »	 / SYSTEM / CHECKINGS / OUTPUTS TEST / 	Chap 6.2
Inputs test	Fault : - open line - short-circuit - « electrical » (12VDC cell)	 / SYSTEM / CHECKINGS / LOOPS MEASURE / measurement : ≈ 20mA : active sensor ≈ 8mA : inactive sensor but correctly wired ≈ 0mA : open line or short-circuit Cell voltage < 10v : Battery has to be changed	Chap 6.3 Chap 7.7
Disabled zones	malfunction: - « fire alarm » (reason : disabled zone)	 / SYSTEM / DISABLED / LIST DISABLED ZONES /	Chap 5.1 5.2 7.9

230V AC Supply on DI09 will cause irreversible damage that have to be repaired at Marinelec Technologies.

The DI09 has an overcurrent circuit management. It consists on a self-resettable fuse. In case of overcurrent, the DI09 automatically shuts down. The return to normal functioning is then possible only after adjusting the supply voltage (24V DC, 0.5A max).

Reversing the connection of 18P connector degrades the electronic card DI09 but do not stop it to function (after a restart). A repairing is not always necessary. However, malfunctions may occur during the various uses that lead to a repairation at Marinelec Technologies.

#### IN CASE OF RETURN FOR SERVICING THE DI09 :

Fill the "identification default form" and attach it to the product when returning it for aftersale service at :

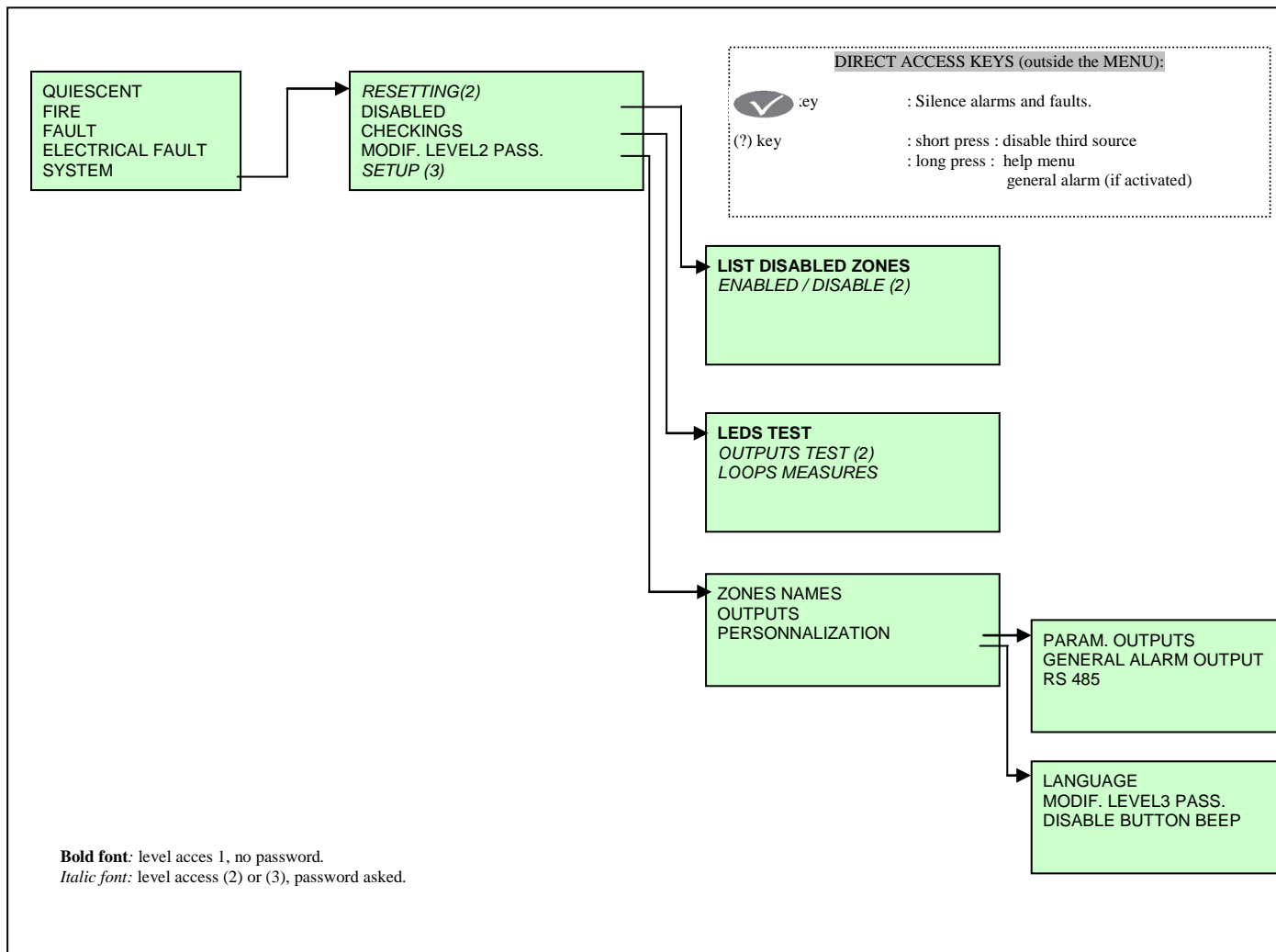
MARINELEC TECHNOLOGIES

13 rue Alfred Le Bars

29000 Quimper

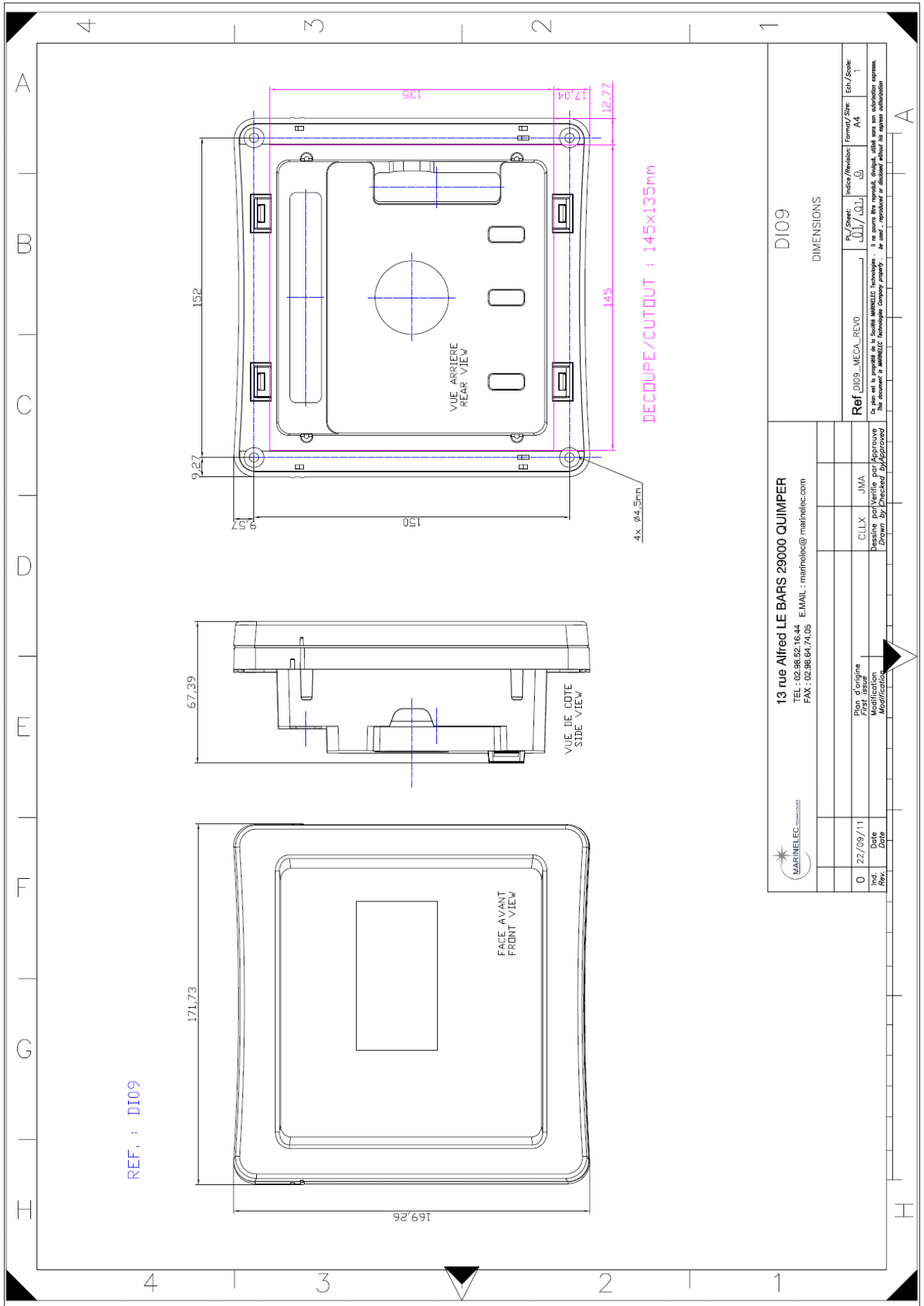
# APPENDIX

## MENU ORGANIZATION

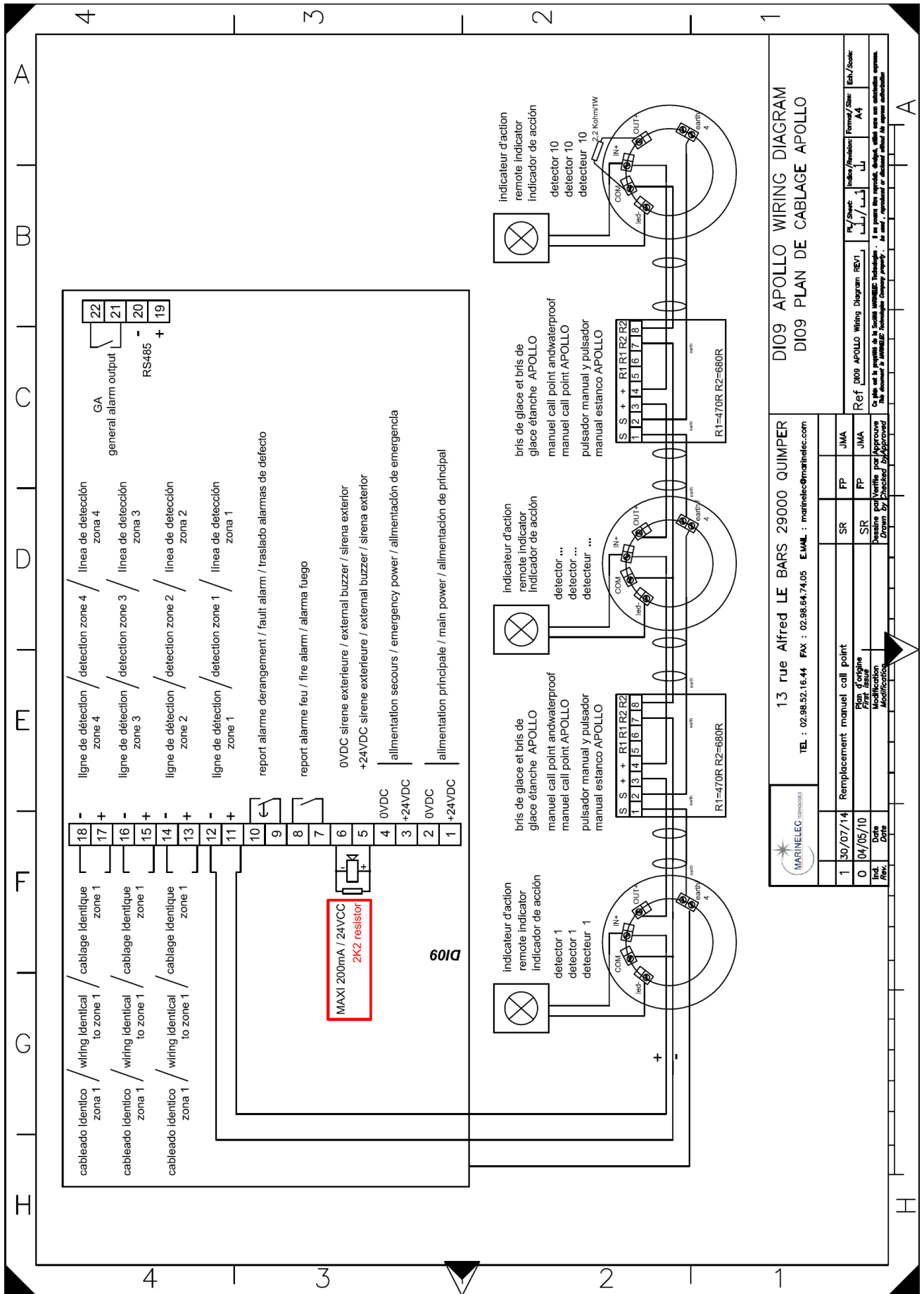




**MECHANICAL DIAGRAM**



# APOLLO WIRING DIAGRAM



DI09 APOLLO WIRING DIAGRAM  
DI09 PLAN DE CABLAGE APOLLO

Ref: 0109 APOLLO Wiring Diagram REV1

Formel/Size: A4

Edn./Scale:

13 rue Alfred LE BARS 29000 QUIMPER  
TEL : 02.98.52.16.44 FAX : 02.98.64.74.05 E.MAIL : marinelec@marinelec.com

Remplacement manuel call point

Date 04/05/10

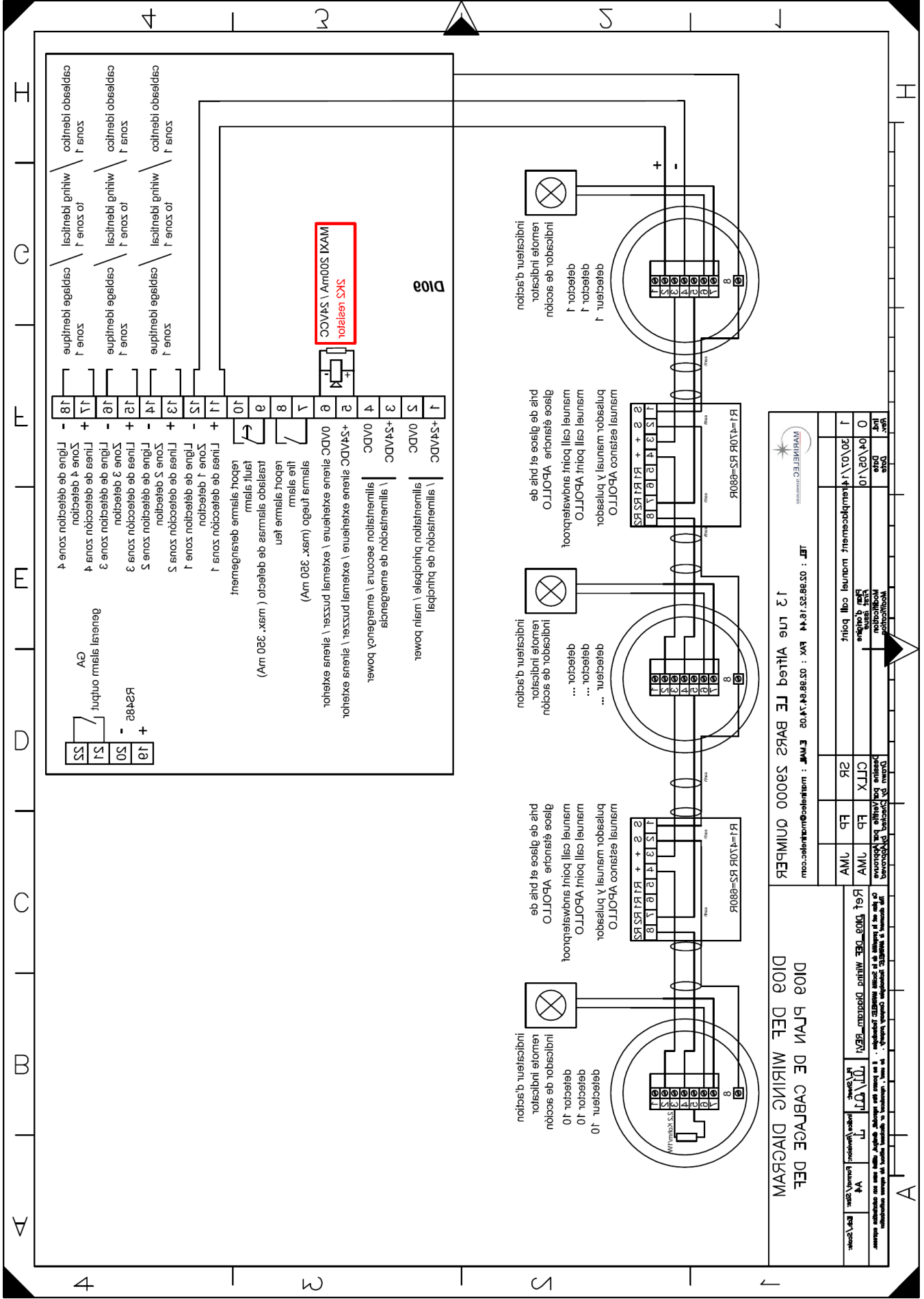
Ind. Rev. Date

Ind. Rev.	Date	Description	SR	FP	JMA
1	30/07/14	Remplacement manuel call point	SR	FP	JMA
0	04/05/10	Plan d'origine First Issue			


Signature par/Verifié par/Approved Drawn By/Checked By/Approved



# DEF WIRING DIAGRAM





		<b>DEFAULT IDENTIFICATION FORM</b>	DATE :
Author :		Contact for diagnostic and repairs or quotation	
Last name :		Last name :	
First name :		First name :	
corporation :		corporation :	
		Phone number :	
Observations (default, localization, circumstances):			

CHECK	COMMENTARY	RESULTS
<b><u>Power Supply States :</u></b>		
Power Supply wiring		<input type="checkbox"/> OK
Power on terminals (1-2 and 3-4)		Meas. :
Is the green led « Power on » lighting?		<input type="checkbox"/> Yes <input type="checkbox"/> No
Do the keyboard keys beep?		<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the 12VDC Battery installed?		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b><u>Interface state :</u></b>		
Do the keyboard keys correctly operate?		<input type="checkbox"/> Yes <input type="checkbox"/> No
Does the buzzer sounds? (Setup « <b>LEDS TEST</b> »)		<input type="checkbox"/> Yes <input type="checkbox"/> No
Do the leds light-up? (Setup « <b>LEDS TEST</b> »)		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b><u>Equipments state :</u></b>		
Do the equipments connected to the DI09 correctly operate? (siren, flash, detectors, ...)	Specifications (voltage, wattage) of the equipments : - - - -	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does equipments (such as detectors) correctly wired to the DI09?		<input type="checkbox"/> OK
Is there an end of line resistor (2k2Ω) on the monitored output (siren) and at the end of each detection loop?		<input type="checkbox"/> OK
<b><u>Functionality state :</u></b>		
Does the alarms and faults « acknowledgment » operate?		<input type="checkbox"/> Yes <input type="checkbox"/> No
Does the « alarms and faults reset » operate?		<input type="checkbox"/> Yes <input type="checkbox"/> No
Does the « electrical fault » detection operate?		<input type="checkbox"/> Yes <input type="checkbox"/> No
Does the « fire alarm » operate?		<input type="checkbox"/> Yes <input type="checkbox"/> No
Does the « fault detection » operate ?		<input type="checkbox"/> Yes <input type="checkbox"/> No

Handling to do when the default occurs:  / **SYSTEM** / **CHECKINGS** / **LOOPS MEASURE** /

LOOP	Results :
Loop 1	
Loop 2	
Loop 3	
Loop 4	
Battery	





PASSAGERS, CROISIÈRE,  
YACHTS, GRANDE PLAISANCE,  
OFFSHORE SUPPLY, SERVITUDE,  
MILITAIRE, SURVEILLANCE,  
SÉCURITÉ, SAUVETAGE,  
SCIENTIFIQUE, RECHERCHE,  
COMMERCE, FLUVIAL, PÊCHE



PASSENGER SHIPS, CRUISE  
LINERS, YACHTS, LEISURE BOATS,  
OFFSHORE SUPPLY BOATS,  
WORKBOATS, NAVY VESSELS,  
PATROL BOATS, RESCUE BOATS,  
RESEARCH AND SCIENTIFIC VESSELS,  
MERCHANT SHIPS, RIVER CRUISERS



BUQUES DE PASAJEROS, CRUCEROS,  
YATES, BARCOS DE RECREO,  
OFFSHORE, PRÁCTICOS, MILITARES,  
VIGILANCIA, SALVAMENTO, CIENTÍFICOS,  
INVESTIGACIÓN, CARGUEROS, FLUMIALES,  
FISQUEROS



REVENDEUR - INSTALLATEUR AGREE  
REPRESENTED BY  
REPRESENTADO POR



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Fournisseur des Chantiers Navals, de la Marine Nationale, des Douanes, des Motoristes et de l'Industrie  
SIRET 348 586 405 00022 - TVA FR93 348 586 405 - CODE NAF 332A - SARL au capital de 25 249

FABRICATION EN FRANCE - DOCUMENT NON CONTRACTUEL - MARQUE DEPOSEE  
MADE IN FRANCE - NON CONTRACTUAL DOCUMENT - REGISTERED TRADE MARK  
HECHO EN FRANCIA - DOCUMENTO NO CONTRACTUAL - MARCA REGISTRADA