maxlogic

ML-322

COMMISSIONING, OPERATING AND MAINTENANCE MANUAL

MODEL: MAXLOGIC SERIES

SUB MODEL: CONVENTIONAL FIRE EXTINGUISHING PANEL

1. CONTENTS:

2. LIST OF FIGURES 2

3. LIST OF TABLES 3

4. INTRODUCTION 5

5. TEST AND COMMISSIONING STEPS 5

Please consider the followings during system design 5

Describe inputs/outputs on the panel 5

Install equipment with making connections 5

Install panel 5

Program Scenarios (if available) 5

Start up the panel 5

6. GENERAL DESCRIPTIONS 5

6.1 Fire extinguishing panel mechanic case types 5

6.2 Specification of the fire extinguishing panel 5

7. FUNCTIONAL SPECIFICATIONS 7

7.1 List of features 7

8. INSTALLATION 8

8.1 Electrical safety 8

8.2 Installation steps 8

8.2.1 Fire extinguishing panel installation steps 8

9. COMMISSIONING 9

9.1 Control list before commissioning 9

9.2 The general overview of the commissioning operation 9

9.3 Cable connection control before commissioning 9

9.4 Commissioning operations 9

9.4.1 Sounders' commissioning 9

9.4.2 Zones' commissioning 9

10. SPECIFICATIONS OF THE MAIN BOARD 10

11. SPECIFICATIONS OF THE EXPANSION CARD (with 8 way input/output module) 11

12. COMPATIBLE SITE DEVICES LIST 12

13. MENU OPERATIONS 13

14. PROMGRAMMING PANEL INPUTS/OUTPUTS 22

15. BATTERY CAPACITY CALCULATION 27

16. PANEL INPUT/OUTPUT CONNECTIONS 28

16.1 Reserve 24V output 28

16.2 Extinguishing Output 28

16.3 Sounder outputs 29

16.4 Gas Activated Output 30

16.5 Relays on panel 31

16.6 Signal relays on panel 31

16.7 Detection zone lines 32

16.8 Abort input 32

16.9 Reset input 33

16.10 Extinguishing release input 33
16.11 Low pressure input 34
16.12 Extinguishing condition switch input 34
17. PANEL EVENTS 35
18. SYSTEM FAULT CONDITION 36
18.1 To do list for service personnel 36
19. USER CONTROLS AND FUNCTIONS 36
20. EXTINGUISHING STATUS INDICATOR UNIT 40
21. OPERATIONS ON THE PERIODIC MAINTENANCE 42
ANNEX – ML-321 SERIES PANEL STRUCTURE 44
ANNEX – ML-322 SERIES PANEL STRUCTURE 45
ANNEX - LCD MESSAGES 46
ANNEX - 2ND ACCESS LEVEL MENU STRUCTURE 47
ANNEX - 3RD ACCESS LEVEL MENU STRUCTURE 48
ANNEX - De finitions of the Terms 51
ANNEX - Abbreviations 51
ANNEX - Mechanical and Outer Environment Speci fications 52
ANNEX – Input / Output Speci fications 53

2. LIST OF FIGURES

Figure 1-Fire extinguishing panel main board front view 10
Figure 2- Fire extinguishing panel main board rear view 10
Figure 3-Fire extinguishing panel expansion card front view. 11
Figure 4-Fault relay output jumper group doesn't connected 22
Figure5-Selecting supervise condition of the fault relay output as "No" 23
Figure 6-Fault relay output jumper group is connected – Output is energized 23
Figure 7- Selecting supervise condition of the fault relay output as "Yes" 24
Figure 8- Reserve 24V DC output 28
Figure 9-Selenoid connection to extinguishing output 28
Figure10-Activator connection to extinguishing output-1 29
Figure11-Activator connection to extinguishing output-2 29
Figure 12-Sounder Outputs 29
Figure13-Programming sounder outputs for a different output. 30
Figure 14-Gas activated output 30
Figure 15-Programming gas active output for a different output 30
Figure 16- Relays on panel 31
Figure 17-Relays on the panel 31
Figure 18-Detection zone lines 32
Figure 19-Abort Input 32
Figure20-Reset Input 33
Figure 21-Extinguishing release input 33
Figure 22-Low pressure input 34
Figure 23-Extinguishing condition switch input 34
Figure 24-Panel's front side 36

Figure 25-Connection between panel and extinguishing status indicator units 41

3. LIST OF TABLES

Table-1: Classifications of the panel's case types..... 5

Table-2: Compatible site devices 12

4. INTRODUCTION

Producer-manufacturer or importer firms' title, address, and telephone number

Manufacturer Firm:

MAVILI ELEKTRONIK TICARET VE SANAYI A.S.

SERIFALI MAHALLESI, KUTUP SOKAK NO: 27/1-2-4 UMRANIYE / ISTANBUL / TURKEY

TEL: +90 216 466 45 05 – +90 216 466 45 10

Service stations' communication information that related spare parts have been provided

Authorized Services:

MAVILI ELEKTRONIK TICARET VE SANAYI A.S.

SERIFALI MAHALLESI, KUTUP SOKAK NO: 27/1-2-4 UMRANIYE / ISTANBUL / TURKEY

TEL: +90 216 466 45 05 - +90 216 466 45 10

TEKSIS TEKNIK ELEKTRONIK SIS.TIC. VE SAN. LTD. STI

SERIFALI MAHALLESI, KUTUP SOKAK NO: 27/3 UMRANIYE / ISTANBUL / TURKEY

TEL: +90 216 313 60 60 - +90 216 313 47 49

Expected operation life which has been determined and announced by related ministry.

This device's expected operation life is 7 years.

The following points should be checked each working day by user. Observed malfunctions should be registered, and corrective activities which were related with these problems should be performed as soon as possible.

· If device shows its tranquility condition or if there is a deviation from tranquility condition and authorized service has been informed if needed.

· When required operations have been performed to alarms which have been registered after last operation day.

· If disable, experiment or silence operations have been occurred and system turned back to normal operation mode.

This document contains documents which are required for ML-322 series Maxlogic fire extinguishing panel's installation, maintenance and commissioning operations.

The following information are also includes on this document

· Maxlogic fire extinguishing panel's operating manual

· Commissioning of the Maxlogic fire extinguishing panel

· Cabling and cable type recommendations

· Configuration information

· Battery calculation charts

5. TEST AND COMMISSIONING STEPS

At this section the important steps of fire extinguishing panel's installation and commissioning operations have been listed.

Please consider the followings during system design

· Section 15. Battery Capacity Calculation

· Section 16. Panel Input/Output Connections

Describe inputs/outputs on the panel

Standard input/output options can be changed with computer program. Please examine the related section on the computer program's (Exmanager) operating manual for this operation.

Install equipment with making connections

· Please examine Section 8. Installation

Install panel

· Please examine Section 8. Installation.

· Do not connect site devices at this phase.

Program Scenarios (if available)

Please examine the related section on the computer program's (Exmanager) operating manual for this operation.

Start up the panel

· Please examine Section 9. Commissioning.

6. GENERAL DESCRIPTIONS

There are two different case types of fire extinguishing panels. Each case type has been classified with its features. The detail of the case types classification has been shown at Table-1 below.

No	Case Type	Definitions of the features
1	ML-321 series	There are 8 input/output module on the case as standard.
2	ML-322 series	8 input/output module is optional. The front side shape and panel software is different from ML-321.

Table-1: Classification of the panel case types

6.1 Fire extinguishing panel mechanic case types

There are 2 different types of mechanic cases on the panels. They are:

EK – ML-321 Series panel structure

EK – ML-322 Series panel structure

6.2 Specification of the fire extinguishing panel

6.2.1 MGY-0201 MaviGard panel.back.B.1 type front panel plast. cover (MG-MP-MS)

Has been used as panel's front cover.

6.2.2 MLY-0207 ML-12XX Function Switch

Has been used as key lock and extinguishing status switch.

6.2.3 MLY-3700 Maxlogic panel.back.ML-322 metallic TR serigraphy

Metallic front side serigraphy that is used on ML-322 series panels.

6.2.4 MLY-3202 Maxlogic ML-322 conv. extinguishing panel.back. MainBoard

Main board that is used on ML-322 series panel s.

6.2.5 MLY-3203 Maxlogic ML-322 conv.panel.back.TR Front side Metallic Main Board

Metallic mounted front side serigraphy of the main board that is used on ML-322 series panels.

6.2.6 MLY-3702 Maxlogic panel.back.ML-321 metallic RU serigraphy

Metallic front side serigraphy that is used on ML-322 series panels.

6.2.7 MLY-3200 Maxlogic ML-321 conv. extinguishing panel.back. MainBoard

Main board that is used on ML-321 series panels.

6.2.8 MLY-3201.RU Maxlogic ML-321 conv.panel.back.RU Front side Metallic Main Board

Metallic mounted front side serigraphy of the main board that is used on ML-321 series panels.

6.2.9 Z12-7 Leak proof battery 12V; 7 Ah

Has been used on the whole panel models to operate them permanently against power cut.

6.2.10 MLY-0508 220 30V 120W Transformer (with CE) (L leg)

Has been used to reduce 220V to operating voltage on the panels.

6.2.11 MGY-0200 MaviGard panel.back.B.1 type back metallic box (MG-MP-MS)

Has been used as panel's back side metallic box.

6.2.12 ML-3202 Input/Output (I/O) module that is used for Maxlogic conventional fire extinguishing panel

An optional module that can be added to panel afterwards with fully programmable 8 input and 8 output.

7. FUNCTIONAL SPECIFICATIONS

7.1 List of features

4 Detection Zones, 1 Extinguishing Output	There are 4 fire detection zones and 1 extinguishing output.
Two devices warning condition's detection	Zone LED has been flashing when a single device activates, this LED permanently illuminates when al last two device activates.
Adjustable first level sounder delays.	First level sounder delays can be adjusted as 30 seconds, 1 minute, 2 minutes, 3 minutes, 4 minutes, 5 minutes, 6 minutes, 7 minutes, minutes or 9 minutes.
Delay assignment of the detection zones.	Fire alarm warning detections from zones can be postponed with 30 seconds.
Adjustable delay and extinguishing times.	Sounders, zones or extinguishing outputs can be can be postponed.
Unlatching zone option	Fire alarm condition has been deactivated when fire signal from detection zones has been disappeared.
Extinguishing release countdown time	Has been appeared on delay screen at the extinguishing panel as countdown.
Supervised detection zone inputs, extinguishing abort input, extinguishing reset input, extinguishing release input, low pressure input, status switch input.	Line's open or short circuit conditions has been controlled with supervised inputs.
Supervised extinguishing output, secondary level sounder, first level sounders, gas released output.	Line's open or short circuit conditions has been controlled with supervised outputs.
Remote switching features of the extinguishing status switch's extinguishing mode.	Extinguishing mode can be adjusted automatically and manually or only manually with extinguishing status switch input.
Fire and fault relay	There are relays on the panel that changes their contacts during fire and fault conditions.
Volt free change over relay contact signal output for fire and fault.	There are signals outputs that indicates fire and fault conditions.
Energized/Volt free change over relay contact operation option for outputs.	Outputs can be used optionally whether energized or volt free change over relay contact.
Operating options with extension card of 8 inputs, 8 outputs.	8 output and 8 input can be added with ML-3202 extension card.
Active / passive option of the crosszone operation with PC software.	Desired zones can be chosen as extinguishing zones by PC software. Extinguishing operation can be started when an alarm information comes from two devices on the same zone or different zones.
Real time clock	Event logs have been stored on the system by real time clock.
Up to 1000 event log memory.	Up to 1000 event logs can be stored on panel's memory.
Event logs can be displayed by PC software.	Event logs can be received from panel and displayed by Pc software.
Receiving event logs via RS-232 port. (with PC, printer)	Event logs on the panel can be received from RS-232 and printed.

8. INSTALLATION

System should be installed by an expert and experienced person. The followings are importantly recommended

- IEE connection regulation
- TS EN 54-14 standard
- Any of the special field requirements
- Installation directives of the field devices.

8.1 Electrical safety

Panel has been designed to operate with 230 V AC 50 Hz supplied voltage. Protecting ground on the panel MUSLT be connected to ground terminal. Grounding resistance should be lesser then 10 ohm. If the device is not properly connected to the ground the whole conductor parts on the device may cause a electrical leakage and it may harmful.

Panel's main supplied voltage should be applied via 230V AC 6A external automatic fuse and "WARNING,THIS IS THE FIRE ALARM PANEL'S FUSE, PLEASE DO NOT SHUT DOWN " warning message must be written on the fuse to not shut down the system.

Panels supplier cable should be 3x2,5 NYM or 3x2,5 NYA type. 230V AC 50hz mains voltage shouldn't be applied on panel's detector and manual call point line inputs, sounder supplied line outputs, and battery connection inputs. If system is energized, do not removed or attached zone lines, supplying lines and card connections. Do not interfere the system. The system has been supplied from 12V 7Ah leak proof type lead oxide batteries on the panel when power is cut out. Batteries are automatically charged.

8.2 Installation steps

1. Remove the panel from box and place it on a flat surface.
2. Control inside the package to check the items as listed below:

No	Description	Color / Value
4	Zone elr	6K8 Carbon Film %5 ¼ Watt
3	Sounder elr	10K Carbon Film %5 ¼ Watt
1	Gas activate output elr	10K Carbon Film %5 ¼ Watt
1	Extinguishing output diode	1N4001
5	Holding, cancelling, releasing, low pressure extinguishing status switch input	6K8 Carbon Film %5 ¼ Watt
1	Reserve fuse	2A glass fuse
1	Allen Key	4mm

(Elr: End line resistance)

8.2.1 Fire extinguishing panel installation steps

The mounting location must be easily accessible, does not effected any vibration, clean and dry area. Panel must be installed on a flat surface and the indicators must be on the eye level. Panel does not being installed inside another cabin or high temperature source. Remove panel from the box properly, and place it to a flat surface. Open panel's cover with allen key. There are two cable entries on the panel: top and behind. Using the box as a template, mark the position of the fixing holes, ensuring that the wall is flat at the chosen location. Drill the wall from the marked position and fix it by screws.

Screws or bolts of a minimum of 4mm diameter must be used to mount the enclosure in all four mounting positions.

Panel's main supply line must be prepared as described on section 8.1. Electrical safety.

Please be sure that the whole cables should be entered to the panel.

Cable connections must be performed by authorized technical personnel.

9. COMMISSIONING

9.1 Control list before commissioning

1. Before the commissioning operation, technical personnel must be controlled the followings:
   - Cable connections on site.
   - Each cable must be connected to the panel.
   - Unconnected detectors or manual call points.
   - Unattached end of line resistors.
2. Technical personnel which will be performed the commissioning operation must be informed about the followings:
   - Zone line's drawings
   - Cable connection's drawings
   - Panel's planning and scenario documents (if it is available)
   - Panel's installation manual
   - Each device's operating manuals

9.2 The general overview of the commissioning operation

During the commissioning operation, the whole of the system's functions and circuits must be controlled. Thus, possible faults or errors can be detected and solved easily.

- At first the sounders at the system have been started-up.
- Then, zone line's commissioning operation must be completed. At this stage each device's connections must be checked.

Scenarios (if available) should be tested at this stage.

9.3 Cable connection control before commissioning

1. At this section, it is assumed that the panel has been installed correctly depend on the described installation procedures and as a result of this, system is operating correctly. At this stage cables on the site should not be connected.
2. Zone and sounder lines must be checked that there is no any device connection between them. But it is important that, these lines must be located on related devices' places.
3. Each cable must be controlled against any of the ground leakage.
4. Zone and sounder line end must be short circuited and the resistance value between positive and negative pins must be measured. Measured value should not be greater than calculated value. After this test short circuit condition has been fixed to normal condition.
5. Polarization validity must be controlled. If there is any trouble it must be fixed.
6. After all of these steps the whole device's mounting operations have been performed.

9.4 Commissioning operations

9.4.1 Sounders' commissioning

Before commissioning operation after cable control has been completed the following operations can be performed:

1. Disconnect the end of line resistance from first sounder output, and connect this resistance again. During this test controlled sounder line's fault conditions must be checked.
2. An alarm condition has been performed and the whole connected sounders' operation has been checked.
3. Silence Alarm and Reset buttons must be pushed.

This procedure has been repeated for each sounder output. (if available)

9.4.2 Zones' commissioning

1. Shut down the panel.
2. Check 6K8 values end of line resistance at the end of the zone line.
3. Panel's zone line's polarization must be controlled and zone line input should be connected.
4. Energized the panel, fix any of the short or open circuit condition.

5. Disconnected the panel.

6. Repeat the same stages from 1 to 5 for each zone line at the system.

7. Energized the panel, check the system if there is a problem. If there is an open or short circuit condition; system send fault messages.

Note: After commissioning operation event logs must be deleted.

10. SPECIFICATIONS OF THE MAIN BOARD

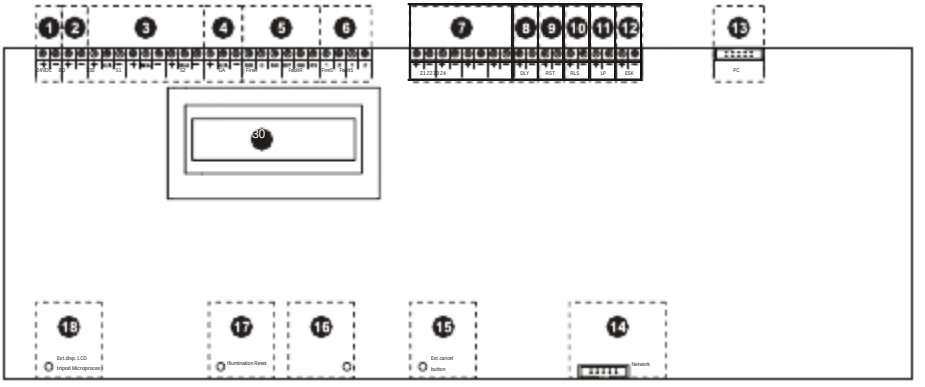


Figure 1-Fire extinguishing panel main board front view

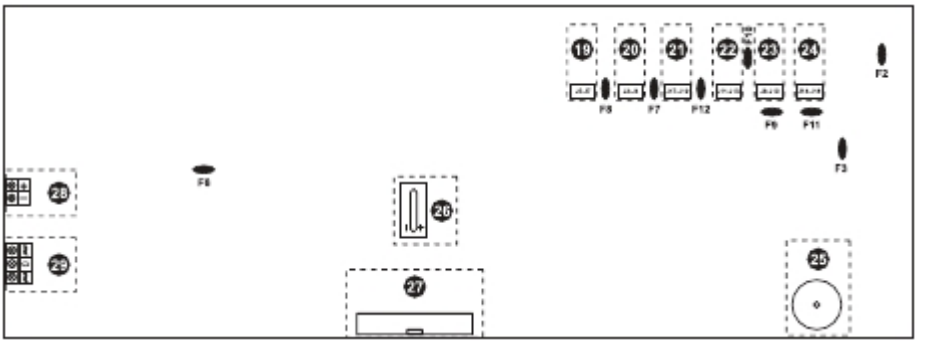


Figure 2- Fire extinguishing panel main board rear view

Definitions:

1. Reserved 24V DC supplied output for external devices
2. Extinguishing output
3. Sounder outputs' connection
4. Gas activated output
5. Volt-free charge over relay output connection
6. Signal relays output
7. Zone line inputs
8. Abort input
9. Stop input
10. Release input
11. Low pressure input
12. Extinguishing status key input
13. PC connection socket
14. Extinguishing status indicator's connection port
15. Extinguishing cancel button
16. Microprocessor reset button
17. LCD illumination adjusting tripod
18. Extinguishing display tripod
19. Fault relay's nail group
20. Fire relay's nail group
21. Gas activate output's nail group
22. Sounder 2 output's nail group
23. Sounder 1 output's nail group
24. 2nd level sounder output's nail group
25. External buzzer
26. Lithium battery, to keep event logs and real time clock's continuity
27. Extension card's connection socket
28. Battery connection terminal

F2 24V DC automatic fuse
F3 Extinguishing output automatic fuse
F6 Battery automatic fuse
F7 Fire relay automatic fuse
F8 Fault relay automatic fuse
F9 Sounder 1 automatic fuse
F10 Sounder 2 automatic fuse
F11 2.level sounder automatic fuse
F12 Gas active output automatic fuse

11. SPECIFICATIONS OF THE EXPANSION CARD (with 8 way input/output module)

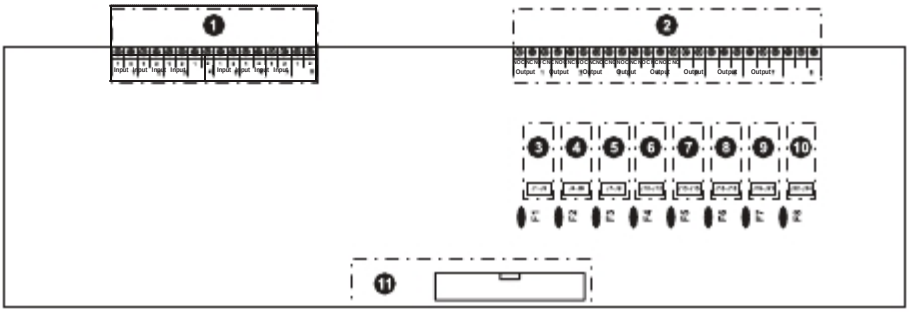


Figure 3-Fire extinguishing panel expansion card front view

Descriptions:

1. 8 way programmable input
2. 8 way programmable output
3. Nail group for Output 1
4. Nail group for Output 2
5. Nail group for Output 3
6. Nail group for Output 4
7. Nail group for Output 5
8. Nail group for Output 6
9. Nail group for Output 7
10. Nail group for Output 8
11. Extinguishing panel main board connection socket

F1 Output 1 automatic fuse
F2 Output 2 automatic fuse
F3 Output 3 automatic fuse
F4 Output 4 automatic fuse
F5 Output 5 automatic fuse
F6 Output 6 automatic fuse
F7 Output 7 automatic fuse
F8 Output 8 automatic fuse

12. COMPATIBLE SITE DEVICES LIST

Material Code	Material Description
ML-3202	Maxlogic conventional fire extinguishing panel Input/Output (I/O) module (8 way input/8 way output)
MG-5300	MaviGard fire extinguishing equipment latched extinguishing abort button
MG-5310	MaviGard fire extinguishing equipment extinguishing release button
MG-2100	MaviGard Conventional photo-electric smoke detector, white
MG-2200	MaviGard Conventional ionized smoke detector, white
MG-2300	MaviGard Conventional combined heat detector, white
MG-2400	MaviGard Conventional fixed heat detector, white
MG-2500	MaviGard Conventional multi sensor detector (photo-electric smoke + heat), white
MG-3500	MaviGard Universal detector base, white
MG-3600	MaviGard detector equipment recessed mounting base, white
MG-3700	MaviGard surface mounting back box for smoke detectors
MG-4000	MaviGard remote indicator
MG-4100	MaviGard remote indicator back box (for MG-4000)
MG-5120	MaviGard Conventional fire alarm button, resettable, mounting box included
MG-5130	MaviGard Conventional manual call point weatherproof; resettable completed
MG-5000	MaviGard electronic sounder
MG-5200	MaviGard electronic sounder strobe, red 24V
MG-5400	MaviGard fire alarm bell, 6”, 24V DC
ML-2180	Maxlogic Conventional water leakage detector
ML-2181	Maxlogic Conventional water leakage detector, relay output
GD2R-12EC	MaviGard Carbon-monoxide (CO) detector, 12V DC, with 2 alarm level output, electrochemical
GD2R-220EC	MaviGard GD/GDR series gas detectors, carbon-monoxide detector, 220V AC, electrochemical
GD2R-220LEC	MaviGard Carbon-monoxide (CO) detector, 220V AC, with 2 alarm level output, electrochemical
GD2R-220MEC	MaviGard combined LPG (Butane + Propane) and carbon-monoxide, 220V AC, with 2 Alarm level output, electrochemical
GD2R-24EC	MaviGard Carbon-monoxide (CO) detector, 24V DC, with 2 alarm level output, electrochemical
GD-220EC	MaviGard GD/GDR series gas detectors, carbon-monoxide detector, 220V AC, electrochemical
GD-220L	MaviGard GD/GDR series gas detectors, LPG (Butane + Propane) detector, 220V AC
GD-220LEC	MaviGard GD/GDR series gas detectors, combined LPG (Butane + Propane) and carbonmonoxide detector 220V AC, electrochemical
GD-220M	MaviGard GD/GDR series gas detectors, methane (natural gas) detector, 220V AC
GD-220MEC	MaviGard GD/GDR series gas detectors, combined methane (natural gas) and carbonmonoxide detector, 220V AC, electrochemical
GDR-1224L	MaviGard GD/GDR series gas detectors, LPG (Butane + Propane) detector, 12/24V DC, with relay output
GDR-1224LEC	MaviGard GD/GDR series gas detectors, combined LPG (Butane + Propane) and carbonmonoxide detector, 12/24V DC, with relay, electrochemical

GDR-1224M	MaviGard GD/GDR series gas detectors, methane (natural gas) detector, 12/24V DC, with relay output
GDR-1224MEC	MaviGard GD/GDR series gas detectors, combined methane (natural gas) and carbonmonoxide detector, 12/24V DC, with relay, electrochemical
GDR-220L	MaviGard GD/GDR series gas detectors, LPG (Butane + Propane) detector, 220V AC, with relay output
GDR-220M	MaviGard GD/GDR series gas detectors, methane (natural gas) detector, 220V AC, with relay output
TGDR- 1224M	MaviGard gas detector for methane (natural gas), 12/24V DC, wit relay output, ceiling type, needs MG-3500 base
MG-1910.K	MaviGard Superflow air duct sampling unit, with 60cm venture pipe and conventional photo-electric smoke detector

Table-2: Compatible site devices

13. MENU OPERATIONS

13.1. 2ND ACCESS LEVEL (USER FUNCTIONS)

During the normal operation mode, panel menu is at 1st access level. To pass 2nd access level:

- "Key Lock" switch, should be switched to "Open" position.
- "Enter" button should be pressed to enter menu screen.
- "Left Arrow" and "Right Arrow" buttons should be used to change between menu steps.
- "Enter" button should be pressed to select any of the menu step.

13.1.1. Fan Relay

Fan relay is manually activated by user after extinguishing time completed on 2nd access level.

Depend on the default adjustments, there is no any "Fan Relay" on the panel. This function can be assigned to panel's main board by computer software or an output at the ML-3202 expansion card. (See Section 14).

To activate extinguishing relay:

- Enter "Fan Output Dr." menu on 2nd access level
- "Enter" button should be pressed to enter menu screen
- "Active" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

"Passive" option should be selected to turn back the initial position of the relay. Output will be turned back to its initial position within 3 minutes after activating. They are reactivating if requested. When extinguishing operation reset, it turns back to the initial position.

Note: If there is no any "Fan Relay" output which is assigned on panel or extension card, this menu is not reachable.

13.1.2. First Stage Sounder Output Disable Operation

First stage sounder outputs (S1, S2) can be disabled with this menu. It is not effected 2SS output. To disable first level sounder output:

- "Sounder" menu on 2nd access level should be selected by "Right Arrow".
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When the first stage sounder has been disabled, "Disable" and "Sounder Fault/Disable" LED's illuminates. "Enable" option should be selected to enable first stage sounder.

13.1.3. Gas Activation Output Disable Operation

This output can be disabled. To disable gas activation output:

- "Gas Activation Output" menu on 2nd access level should be selected by "Right Arrow".
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When the gas activation output has been disabled, "Disable" LED illuminates. "Enable" option should be selected to enable gas activation output.

13.1.4. Fire Relay Disable Operation

Fire relay's contact has been changed and activated by "Silenced Alarm / Alarm" button on the panel and "AL" remote controller input from a fire alarm signal which is received from any detection zone and has been used to control any other system. If requested fire alarm relay can be disabled by the following steps:

- "Fire relay" menu on 2nd access level should be selected by "Right Arrow".
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When the fire relay output has been disabled, "Disable" LED illuminates. "Enable" option should be selected to enable fire relay output on the same menu.

13.1.5. Fault Relay Disable Operation

Fault relay's contact has been changed and activated by any of the fault warning from system or its remote controller input and has been used to control any other system. If requested fault alarm relay can be disabled by the following steps:

- "Fault relay" menu on 2nd access level should be selected by "Right Arrow".
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When the fault relay output has been disabled, "Disable" LED illuminates. "Enable" option should be selected to enable fault relay output on the same menu.

13.1.6. Zone 1 Disable Operation

Detection zones can be disabled. To disable Zone 1:

- "Zone 1" menu on 2nd access level should be selected by arrow buttons.
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When Zone 1 has been disabled, "Disable" and "Zone 1 Fault" LED's are permanently illuminated. "Enable" option should be selected to enable Zone 1 on the same menu.

13.1.7. Zone 2 Disable Operation

Detection zones can be disabled. To disable Zone 2:

- "Zone 2" menu on 2nd access level should be selected by arrow buttons.
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When Zone 1 has been disabled, "Disable" and "Zone 2 Fault" LED's are permanently illuminated. "Enable" option should be

selected to enable Zone 2 on the same menu.

13.1.8. Zone 3 Disable Operation

Detection zones can be disabled. To disable Zone 3:

- "Zone 3" menu on 2nd access level should be selected by arrow buttons.
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When Zone 3 has been disabled, "Disable" and "Zone 3 Fault" LED's are permanently illuminated. "Enable" option should be selected to enable Zone 3 on the same menu.

13.1.9. Zone 4 Disable Operation

Detection zones can be disabled. To disable Zone 4:

- "Zone 4" menu on 2nd access level should be selected by arrow buttons.
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When Zone 4 has been disabled, "Disable" and "Zone 4 Fault" LED's are permanently illuminated. "Enable" option should be selected to enable Zone 4 on the same menu.

13.1.10. Switching to Test Operation Mode of Zone 1

Detection zones can be switching to test operation mode. The system is automatically reset when any of the alarm condition comes from Zone 1. To switch test operation mode:

- "Zone 1 Test" menu on 2nd access level should be selected by arrow buttons.
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When Zone 1 switched to test operation mode , "Test enable" and "Zone 1 Fault" LED's are permanently illuminated. "Disable" option should be selected to disable the test mode of Zone 1 on the same menu.

13.1.11. Switching to Test Operation Mode of Zone 2

Detection zones can be switching to test operation mode. The system is automatically reset when any of the alarm condition comes from Zone 2. To switch test operation mode:

- "Zone 2 Test" menu on 2nd access level should be selected by arrow buttons.
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When Zone 2 switched to test operation mode , "Test enable" and "Zone 2 Fault" LED's are permanently illuminated. "Disable" option should be selected to disable the test mode of Zone 2 on the same menu.

13.1.12. Switching to Test Operation Mode of Zone 3

Detection zones can be switching to test operation mode. The system is automatically reset when any of the alarm condition comes from Zone 3. To switch test operation mode:

- "Zone 3 Test" menu on 2nd access level should be selected by arrow buttons.
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When Zone 3 switched to test operation mode , "Test enable" and "Zone 3 Fault" LED's are permanently illuminated. "Disable"

option should be selected to disable the test mode of Zone 3 on the same menu.

13.1.13. Switching to Test Operation Mode of Zone 4

Detection zones can be switching to test operation mode. The system is automatically reset when any of the alarm condition comes from Zone 4. To switch test operation mode:

- "Zone 4 Test" menu on 2nd access level should be selected by arrow buttons.
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When Zone 4 switched to test operation mode , "Test enable" and "Zone 1 Fault" LED's are permanently illuminated. "Disable" option should be selected to disable the test mode of Zone 4 on the same menu.

13.1.14. Low Pressure Input Disable Operation

Low pressure input has been used to inform panel when the gas level of the extinguisher is lower than the stated value or any gas leakage. Low pressure input can be disabled. To disable this input:

- "Low Pressure Input " menu on 2nd access level should be selected by arrow buttons.
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When low pressure input has been disabled, "Disable" LED is permanently illuminated. "Enable" option should be selected to enable low pressure input on the same menu.

13.1.15. Manuel Extinguishing Disable Operation

When manual extinguishing operation has been disabled, extinguishing process does not being started by pressing "Start Extinguishing" button. To disable the manual extinguishing:

- "Manual Extinguishing" menu on 2nd access level should be selected by arrow buttons.
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When manual extinguishing has been disabled, "Disable" and "Manual Extinguishing Disable" LED's are permanently illuminated. "Enable" option should be selected to enable manual extinguishing on the same menu.

13.1.16. Extinguishing System Disable Operation

When extinguishing system has been disabled, "Processing Condition", "Extinguishing Delay Condition", "Release Condition", "After Extinguishing Condition", and "Unpredicted Release Condition" does not happened. So, the related outputs does not activated. When extinguishing system has been disabled, if there is an event which effect to start "Processing Condition" (ex: pressing Start Extinguishing button), "Extinguishing Procedure Activated" and "Gas Output Activated" LED's starts blinking. To disable extinguishing system:

- "Extinguishing System" menu on 2nd access level should be selected by arrow buttons.
- "Enter" button should be pressed to enter menu screen
- "Disable" option should be selected by pressing "Right Arrow"
- Adjustments should be installed by pressing "Enter" button

When extinguishing system has been disabled, "Disable" and "Extinguishing Disable" LED's are permanently illuminated. "Enable" option should be selected to enable extinguishing system on the same menu.

13.2. 3RD ACCESS LEVEL (ENGINEERING FUNCTIONS)

There is engineering level functions on the 3rd access level. To pass 3rd access level:

- "3rd Access Level" menu on 2nd access level should be selected by arrow buttons.
- "Enter" button should be pressed to enter password screen.
- "Enter", "Right Arrow", "Enter", "Right Arrow" buttons must be pressed respectively. The numerical value of the "Enter" button is 1, and the numerical value of the "Right Arrow" is 2. So, the entry password to access 2nd access level is "1212".)
- "Enter" button should be pressed to pass 3rd access level.

13.2.1. First Level Sounder Delay

First level sounder outputs can be delayed with a certain time. To do this operation:

- "Sounder Delay" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

When first level sounder delay has been enabled, "Delay Activated" and "Sounder Delay Activated" LED's permanently illuminated. "Enable" option should be selected to cancel first level sounder delay. Delay's origin should be determined at 3rd access level to enable first access level delay. (See Section: 13.2.15/16/17/18) Delay origin can be detectors and/or manual call points. After determining delay origin, delay time should be adjusted on 3rd access level.

13.2.2. Delay Time Adjustment for First Level Sounder

First level sounder delay times can be adjusted as 30 seconds, 1 minute, 2 minutes, 3 minutes, 4 minutes, 5 minutes, 6 minutes, 7 minutes, 8 minutes, and 9 minutes. To adjust the delay time:

- "Sounder Delay Time" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

This delay time is 30 seconds as default.

13.2.3. Delaying Zone 1 Input

Fire alarm warning detections from panel's Zone 1 input can be delayed as 30 seconds.

- "Zone 1 Delay" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

When Zone 1 delay has been activated, "Delay Activated" LED is illuminates permanently. "Disable" selection at the same menu should be chosen to cancel delay.

13.2.4. Delaying Zone 2 Input

Fire alarm warning detections from panel's Zone 2 input can be delayed as 30 seconds.

- "Zone 2 Delay" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

When Zone 2 delay has been activated, "Delay Activated" LED is illuminates permanently. "Disable" selection at the same menu should be chosen to cancel delay.

13.2.5. Delaying Zone 3 Input

Fire alarm warning detections from panel's Zone 3 input can be delayed as 30 seconds.

- "Zone 3 Delay" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

When Zone 3 delay has been activated, "Delay Activated" LED is illuminates permanently. "Disable" selection at the same menu should be chosen to cancel delay.

13.2.6. Delaying Zone 4 Input

Fire alarm warning detections from panel's Zone 4 input can be delayed as 30 seconds.

- "Zone 4 Delay" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

When Zone 4 delay has been activated, "Delay Activated" LED is illuminates permanently. "Disable" selection at the same menu should be chosen to cancel delay.

13.2.7. Adjusting Fire Alarm Condition for Zone 1 as Unlatched

When fire signal from panel's Zone 1 input has been disappeared, zone's fire alarm condition can be automatically terminated. To do this operation:

- "Zone 1 Unlatched" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

"Disable" selection at the same menu should be chosen to disable unlatched selection of Zone 1.

13.2.8. Adjusting Fire Alarm Condition for Zone 2 as Unlatched

When fire signal from panel's Zone 2 input has been disappeared, zone's fire alarm condition can be automatically terminated. To do this operation:

- "Zone 2 Unlatched" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

"Disable" selection at the same menu should be chosen to disable unlatched selection of Zone 2.

13.2.9. Adjusting Fire Alarm Condition for Zone 3 as Unlatched

When fire signal from panel's Zone 1 input has been disappeared, zone's fire alarm condition can be automatically terminated. To do this operation:

- "Zone 3 Unlatched" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

"Disable" selection at the same menu should be chosen to disable unlatched selection of Zone 3.

13.2.10. Adjusting Fire Alarm Condition for Zone 4 as Unlatched

When fire signal from panel's Zone 4 input has been disappeared, zone's fire alarm condition can be automatically terminated. To do this operation:

- "Zone 4 Unlatched" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

"Disable" selection at the same menu should be chosen to disable unlatched selection of Zone 4.

13.2.11. Disabling Operation of the Ground Fault Detection

This disabling operation can be performed if requested. This menu is only available for test operations, this cannot be used on applications. To disable ground fault operation detection:

- "Ground Fault" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

"Enable" selection at the same menu should be chosen to reactivate ground fault detection.

13.2.12. Control of an Unsuccessful Extinguishing

"Gas Activated" LED has been permanently illuminates when "Free Release Condition" and "After Extinguishing" conditions have been selected with respect to default settings. "Gas Output Activated" LED illuminates permanently and "Gas Activated" output has been activated.

There is no any "Gas Activate" input on the panel as default. If requested, this function can be assigned to any of the input on the ML-3202 expansion card or panel's main board by PC software. If this feature has been enabled, when "Free Release Condition" and "Before Extinguishing" conditions has been selected "Gas Output Activated" LED is flashes and "Gas Activated" output stays at the normal condition unless "Gas Activate" input has not been trigged. If it is trigged, "Gas Output Activated" LED is permanently illuminated and "Gas Activated" output has been activated. This feature can be enabled by the following steps:

- "Unsuccessful Ext. Detected" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

"Disable" selection at the same menu should be chosen to disable this feature.

13.2.13. Delay Reset Operation

If there is an adjustment has been done to block extinguishing system reset operation on a desired time, desired time has been started after "Processing Condition" depend on the default settings. Extinguishing operation can be delayed within a countdown time with using this menu. To enable this feature:

- "Extinguishing Reset" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

"Disable" selection at the same menu should be chosen to disable this feature.

13.2.14. Enabling Delay Times for Manuel Extinguishing

Delay operation can be performed on manual extinguishing operation depend on the default settings. If "Extinguishing Release" input has been trigged or "Extinguishing Release" button on the pane has been pressed, the delay time selection should be selected from this menu. To do this operation:

- "Man. Ext. Delay" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Enable" selection has been selected by "Right Arrow" button.

· Adjustments should be installed by pressing “Enter” button.

“Disable” selection at the same menu should be chosen to disable this feature.

13.2.15. Determining Delay Source of the Zone 1 for First Level Sounder Output

Delay origin should be selected to perform delay operation at Zone 1. To select this feature:

· “Zone 1 Delay Device” menu screen should be chosen at 3rd access level.

· “Enter” button should be pressed to enter menu screen

· Determined delay origin has been selected from displayed menu with using “Right Arrow” button. They are “Call Points / Buttons” for manual call points, “Detectors” for detectors, and “Both” for both devices.

· Adjustments should be installed by pressing “Enter” button.

If delay origin has been selected as call point or detector, the alarm resistance of the manual call point must be 270Ω. “No Delay” feature must be selected if sounder delay on Zone 1 is not being processed.

13.2.16. Determining Delay Source of the Zone 2 for First Level Sounder Output

Delay origin should be selected to perform delay operation at Zone 2. To select this feature:

· “Zone 2 Delay Device” menu screen should be chosen at 3rd access level.

· “Enter” button should be pressed to enter menu screen

· Determined delay origin has been selected from displayed menu with using “Right Arrow” button. They are “Call Points / Buttons” for manual call points, “Detectors” for detectors, and “Both” for both devices.

· Adjustments should be installed by pressing “Enter” button.

If delay origin has been selected as call point or detector, the alarm resistance of the manual call point must be 270Ω. “No Delay” feature must be selected if sounder delay on Zone 2 is not being processed.

13.2.17. Determining Delay Source of the Zone 3 for First Level Sounder Output

Delay origin should be selected to perform delay operation at Zone 3. To select this feature:

· “Zone 3 Delay Device” menu screen should be chosen at 3rd access level.

· “Enter” button should be pressed to enter menu screen

· Determined delay origin has been selected from displayed menu with using “Right Arrow” button. They are “Call Points / Buttons” for manual call points, “Detectors” for detectors, and “Both” for both devices.

· Adjustments should be installed by pressing “Enter” button.

If delay origin has been selected as call point or detector, the alarm resistance of the manual call point must be 270Ω. “No Delay” feature must be selected if sounder delay on Zone 3 is not being processed.

13.2.18. Determining Delay Source of the Zone 4 for First Level Sounder Output

Delay origin should be selected to perform delay operation at Zone 4. To select this feature:

· “Zone 4 Delay Device” menu screen should be chosen at 3rd access level.

· “Enter” button should be pressed to enter menu screen

· Determined delay origin has been selected from displayed menu with using “Right Arrow” button. They are “Call Points / Buttons” for manual call points, “Detectors” for detectors, and “Both” for both devices.

· Adjustments should be installed by pressing “Enter” button.

If delay origin has been selected as call point or detector, the alarm resistance of the manual call point must be 270Ω. “No Delay” feature must be selected if sounder delay on Zone 4 is not being processed.

13.2.19. Blocking Extinguishing System Reset Operation in a Determined Time

After “Processing Condition” has been satisfied, system does not reset within 10 minutes depend on the default settings. If requested this delay can be adjusted from menu with an interval of 1 minute between 0 minute to 30 minutes. To adjust this time:

· “Reset Eng. Time” menu screen should be chosen at 3rd access level.

· “Enter” button should be pressed to enter menu screen.

- Determined time selection has been selected by “Right Arrow” button.
- Adjustments should be installed by pressing “Enter” button.

Also a countdown time can be adjusted for this delay. Thus, extinguishing operation has been reset during countdown time.

13.2.20. Adjusting Extinguishing Delay Time

Extinguishing delay time is 15 seconds as default. This time can be adjusted as an interval of 5 second intervals between 0 second and 60 seconds or 1 second intervals between 2 minutes and 10 minutes. To adjust this time:

- “Extinguishing Delay” menu screen should be chosen at 3rd access level.
- “Enter” button should be pressed to enter menu screen
- Determined extinguishing delay time selection has been selected by “Right Arrow” button.
- Adjustments should be installed by pressing “Enter” button.

13.2.21. Adjusting Extinguishing Time

Extinguishing time is 30 seconds as default.

- “Extinguishing Time” menu screen should be chosen at 3rd access level.
- “Enter” button should be pressed to enter menu screen
- Determined extinguishing time selection has been selected by “Right Arrow” button.
- Adjustments should be installed by pressing “Enter” button.

Adjustments can be performed by an intervals of 5 seconds, between 30 seconds to 300 seconds. After “300 seconds” text has been appeared on screen, “Permanent” text has been displayed if user press “Right Arrow” button. If “Extinguishing Output” desires to stay be activated unit reset, this feature should be selected.

13.2.22. Date Adjustment

To keep event of the system in order, the date must be adjusted. To adjust system date:

- “Date Adjustment” menu screen should be chosen at 3rd access level.
- “Enter” button should be pressed to enter menu screen
- Day, month, and year fields have been selected by “Right Arrow” button.
- The next adjustment menu can be selected by “Left Arrow” button
- Adjustments should be installed by pressing “Enter” button.

13.2.23. Time Adjustment

To keep event of the system in order, the time must be adjusted. To adjust system time:

- “Time Adjustment” menu screen should be chosen at 3rd access level.
- “Enter” button should be pressed to enter menu screen
- Hour and minute fields have been selected by “Right Arrow” button.
- The next adjustment menu can be selected by “Left Arrow” button
- Adjustments should be installed by pressing “Enter” button.

13.2.24. Printing Event Logs

Panel’s event logs can be transmitted from RS-232 port if requested. Event logs which are received from RS-232 port can be printed by printer or displayed on PC program. To print event logs:

- “Print Event Log” menu screen should be chosen at 3rd access level.
- “Enter” button should be pressed to enter menu screen. At the same time, panel transmits event logs by RS-232 port.

13.2.25. Deleting Event Logs

Event logs can be deleting from panel’s memory if requested. To delete event logs:

- “Delete Event Log” menu screen should be chosen at 3rd access level.
- “Enter” button should be pressed to enter menu screen. At the same time, event logs have been deleted.

13.2.26. Selecting Extinguishing Delay Countdown Type

Delay countdown for extinguishing operation can be selected b user. To do this:

- "Delay Type" menu screen should be chosen at 3rd access level.
- "Enter" button should be pressed to enter menu screen
- "Delay" option have been selected by "Right Arrow" button.
- Adjustments should be installed by pressing "Enter" button.

"Res. And Delay" option should be selected if countdown delay time has been restarted again.

14. PROGRAMMING PANEL INPUTS/OUTPUTS

Different input/output functions can be assigned to panel via PC software. Any other input function cannot be assigned to "Zone 1", "Zone 2", "Zone 3", and "Zone 4" inputs on the main board.

Any other output function cannot be assigned to "Extinguishing Output", "Fire Signal Output", and "Fault Signal Output" outputs on the main board. Outputs' supervised conditions can be adjusted by PC software. The supervised conditions of the "Extinguishing Output", "Fire Signal Output", and "Fault Signal Output" outputs on the main board cannot be changed.

Panel output's energized or volt-free change over relay output condition has been adjusted by determined output's jumpers.

* If one of the output on the panel desires to be volt-free change over relay output, jumpers cannot be connected to output's nails.

"No" section should be selected at "Supervised condition" information from PC.

Example: The adjustment has been shown in 19th fault relay of "Figure-2 Fire extinguishing panel main board rear view" for volt-free change over relay output.

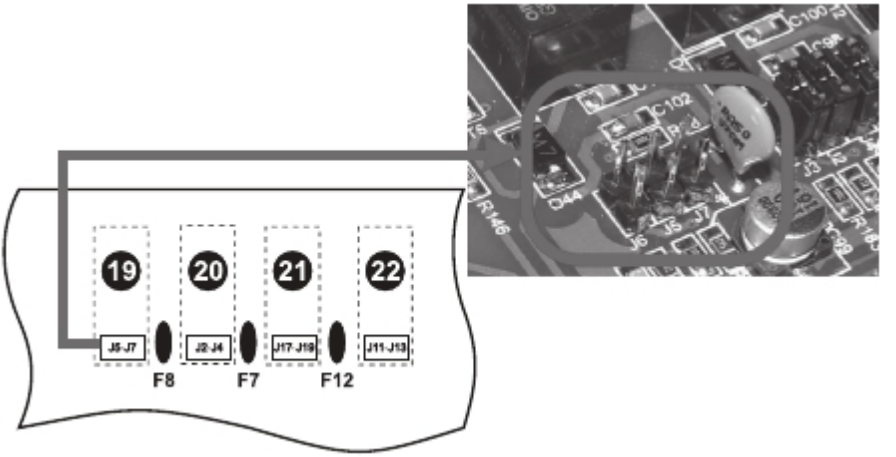


Figure 4-Fault relay output jumper group doesn't connected

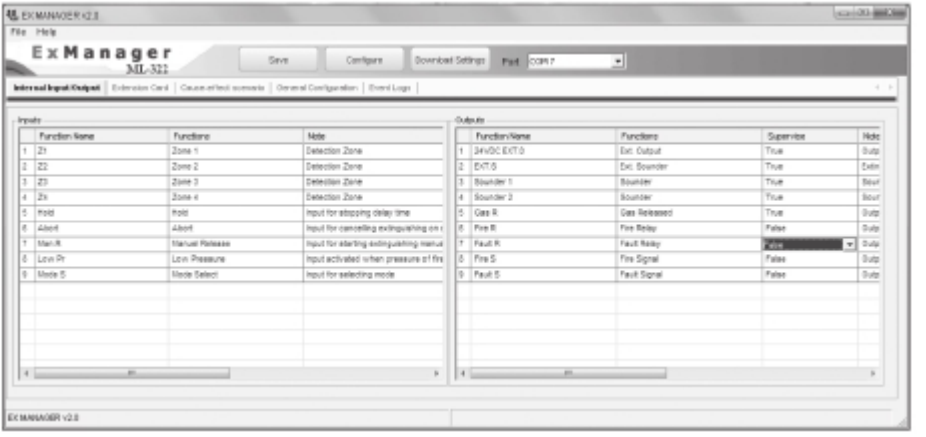


Figure5-Selecting supervise condition of the fault relay output as "No"

Example: The adjustment has been shown in 19th fault relay of "Figure-2 Fire extinguishing panel main board rear view" for energized output.

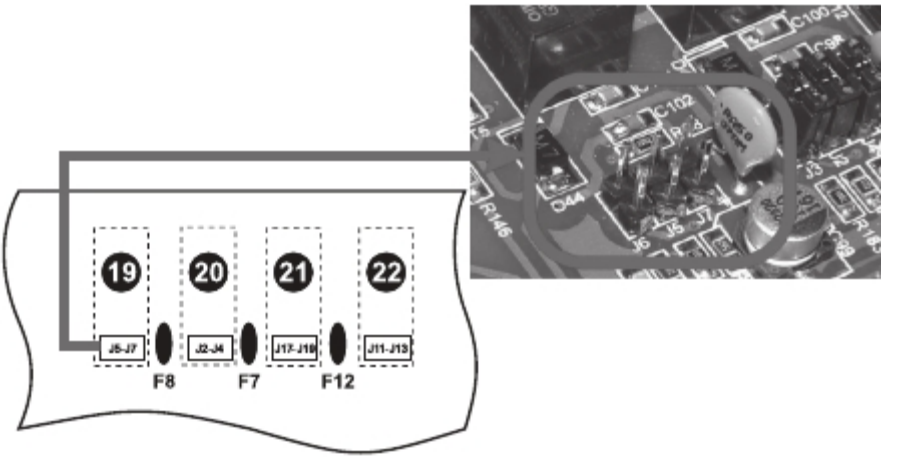


Figure 6-Fault relay output jumper group is connected - Output is energized

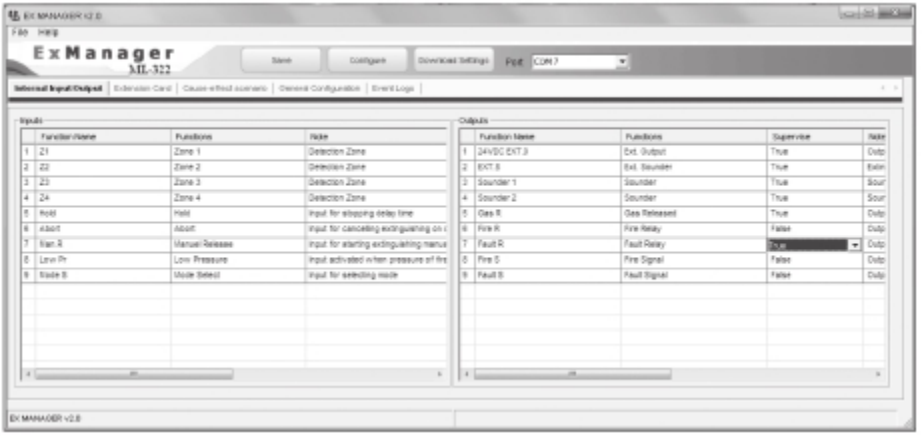


Figure 7- Selecting supervise condition of the fault relay output as "Yes"

Note: One output cannot be assigned as both supervised and volt-free charge over relay output. Supervised condition information can be adjusted by PC program in order to related output's condition. Any other adjustment causes faults messages.

14.1.1. The Other Input Functions which can be Assigned to the Panel

14.1.2. "Gas Activated" Input

With using this input, extinguisher tube's gas release condition can be followed.

14.1.3. "Gas Blocked" Input

This is the input that the activated output has been connected when extinguisher material has been blocked.

14.1.4. "Disabling Device Condition" Input

This is the input that is used to monitor disabled device's open/close condition.

14.1.5. "Disabling Device Abnormal" Input

This is the input that is used to connect activated output which is not exactly open or close.

14.1.6. "Silence Remote Alarm / Alarm" Input

If there is a fire alarm on the system, this input silenced sounder and deactivate alarm relay. If silenced alarm operation has been done before, sounders resounded and alarm relay will be activated.

14.1.7. "Remote Alarm" Input

This input activates the system during normal operation mode.

14.1.8. "Remote Reset" Input

This input reset system.

14.1.9. "Remote Fault" Input

This input starts fault condition on this panel.

14.2. The Other Output Functions which can be Assigned to the Panel

14.2.1. Fan Output

Fan output can be activated as a result of the extinguishing operation. After output has been activated, it turns back to its initial condition automatically within 3 minutes. The output can be activated again if requested. Output turn back to its initial condition when extinguishing operation reset.

14.2.2. Reset Relay

After panel reset, within 10 seconds	ON
Any other cases	OFF

14.2.3. Disabling Device Abnormal Output

When “Disabling Device abnormal” input has been activated	ON
Any other cases	OFF

14.2.4. Disabling Device Close Output

When “Disabling Device condition” input has been activated condition	ON
Any other cases	OFF

14.2.5. Extinguishing Disable Output

When extinguishing has been disabled	ON
Any other cases	OFF

14.2.6. Extinguishing Delayed Output

When extinguishing has been delayed	ON
Any other cases	OFF

14.2.7. Extinguishing Cancel Output

When extinguishing has been cancelled	ON
Any other cases	OFF

14.2.8. Manuel Extinguishing Activated Output

When “Start extinguishing” input has been activated condition	ON
Any other cases	OFF

14.2.9. Alarm Relay

Fire	ON
Any other cases	OFF

14.2.10. Only Manuel Mode Activated Output

When “Only Manuel” mode is valid	ON
Any other cases	OFF

14.2.11. Automatic & Manuel Mode Activated Output

When “Automatic & Manuel” mode is valid	ON
Any other cases	OFF

14.2.12. Zone 1 Fire Output

When Zone 1 is in fire condition	ON
Any other cases	OFF

14.2.13. Zone 2 Fire Output

When Zone 2 is in fire condition	ON
Any other cases	OFF

14.2.14. Zone 3 Fire Output

When Zone 3 is in fire condition	ON
Any other cases	OFF

14.2.15. Zone 4 Fire Output

When Zone 4 is in fire condition	ON
Any other cases	OFF

14.2.16. Zone 1 Fault Output

BWhen there is a fault in Zone 1	ON
Any other cases	OFF

14.2.17. Zone 2 Fault Output

When there is a fault in Zone 2	ON
Any other cases	OFF

14.2.18. Zone 3 Fault Output

When there is a fault in Zone 3	ON
Any other cases	OFF

14.2.19. Zone 4 Fault Output

When there is a fault in Zone 4	ON
Any other cases	OFF

14.2.20. Low pressure Output

When “Low pressure” input has been activated condition	ON
Any other cases	OFF

14.2.21. Gas Blocked Output

When “Gas blocked” input has been activated condition	ON
Any other cases	OFF

14.2.22. First Level Output

“Pre-operation condition”	ON
“Operation condition”	
“Extinguishing Delay Condition”	
“Extinguishing Release Condition”	
“Post-extinguishing condition”	
“Unpredictable release condition”	
Any other cases	OFF

14.2.24. Programmable Relay

Programmable relay’s condition and activity condition can be programmed at PC software. At the programmable relay inputs fire, fault, and disable conditions can be activated and at the outputs fault, disable, and enable conditions can be activated. One of the “and” / “or” relationship between these conditions should be selected.

“Fire Signal” output and “Fault Signal” output does not includes activity condition. Programmable relay’s normal condition can be adjusted by PC software. So relay contact’s condition can be adjusted even though they are not activated.

When programmable relay’s activity condition has been provided, its pulsing and permanent operation mode can be adjusted by PC software. If pulsing mode has been selected, the adjustment can be selected by an intervals of 1 second between 1 second to 255 seconds.

At normal condition programmable relay’s NO-C contacts are open, relay is at permanent operation mode, and relay changes its contacts when any of its input or output are in fire, fault, disable, or enable fault condition at the activated condition on default settings.

15. BATTERY CAPACITY CALCULATION

This section contains the time calculations depend on the used load condition when main network's supplied power is cut out for fault and alarm condition.

1. Ipanel_fault : It is the maximum measured current value on fault condition when there is no main network supply. During this value is measured, sounder outputs, 24 output, and printer output does not connected.

2. Iaux : It is the maximum load value of 24V output.

3. IZones_fault : It is the maximum current value which is calculated when all the loop outputs on the panel are in fault condition.

IZones_fault = IZone1_fault +IZone2_fault +IZone3_fault + IZone4_fault.

IZone1_fault = is the total number of fault and tranquility condition currents which are connected to the all devices on Zone 1.

Ipanel_fault =....mA

Iaux =....mA

IZones_fault =....mA

Ipse_fault=(Ipanel_fault + Iaux+ (2 x IZones_fault))/1000 A

4. Ipanel_alarm : It is the maximum measured current value on alarm condition when there is no main network supply. During this value is measured, sounder outputs, 24 output, and printer output does not connected.

5. Isounders : It is the maximum total current value of S1, S2 and S3 sounder outputs. The connected load value of the outputs is found by addition operation.

Isounder = Is1+Is2+Is3

6. Iaux : It is the maximum load value of 24V output.

7. IZones_alarm : It is the maximum current value which is calculated when all the zone line on the panel are in alarm condition

IZones_fault = IZone1_fault +IZone2_fault +IZone3_fault + IZone4_fault.

IZone1_fault = is the total number of fault and tranquility condition currents which are connected to the all devices on Zone 1.

Tranquility currents have been used for 3 or more pcs. of detectors and manual call points. The reason of this, maximum 3 of their LED's are activated during alarm condition.

Ipanel_alarm =....mA

Isounders =....mA

Iaux =....mA

ILoops_alarm =....mA

Ipse_alarm=(Ipanel_alarm+Isounders+Iaux+ (2 x IZones_alarm))/1000 A

Battery time measurement formula is given blow.

Tfault : The time which the panel is required to be operated at fault and tranquility condition.

Talarm : The time which the panel is required to be operated at alarm condition.

Cmin : Minimum battery capacity.

Tfault =....time

Talarm =....time

Cmin = 1,25 x [(Tfault x Ipse_fault) + (Talarm x Ipse_alarm)]

Cmin value is 7Ah for the panels compatible with EN 54-4 standards. A greater Cmin valued battery can be used for un-compatible panels.

16. PANEL INPUT/OUTPUT CONNECTIONS

16.1 Reserve 24V output

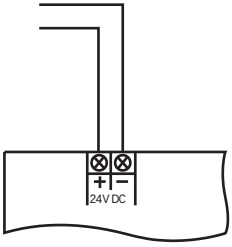


Figure 8- Reserve 24V DC output

24V DC 250 mA external power supply output is available. Exceeding this level may cause panels fault messages. This output can be used for external devices' supplied power line. 2x1,5 N2XH or 2x1,5 NYY coded cables must be used for supplied power line. During power cut , 24V DC supplied voltage output is supplied from battery until battery in run out.

16.2 Extinguishing Output

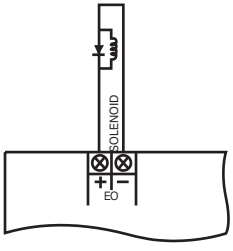


Figure 9-Selenoid connection to extinguishing output

It is a 24V DC 1A extinguishing output and maximum current flow in 2 seconds is 2A. Line has been monitored by 1N4001 diode when solenoid valve connection has been performed or monitored by resistance value which can be adjusted by "Extinguishing Monitoring" tripod. 1 pc. of valve or up to 4 pcs. of activator can be connected. 2,2 ohm, 2,5 W end of line resistance should be used if 1 or 2 pcs. of activator have been connected to extinguishing output. If 4 pcs. of activator have been connected to extinguishing output, there is no need to add end of line resistor. The resistance value which is used to monitor line from panel with "Extinguishing Monitoring" output should be adjusted when an activator has been connected to extinguishing output. After the whole connections have been completed, "Extinguishing Monitoring" tripod should be turned left until "Extinguishing Fault" LED illuminates. After that the reverse operation (turning right) should be performed to turn off "Extinguishing Fault" LED. Then, extra 2 round should be turned at the same direction (totally 360 degree of angle). The monitoring resistance has been adjusted by this way.

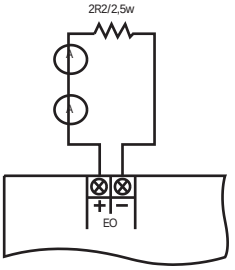


Figure10-Activator connection to extinguishing output-1

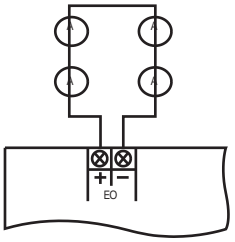


Figure11-Activator connection to extinguishing output-2

"Release Condition"	ON
Any other cases	OFF

16.3 Sounder outputs

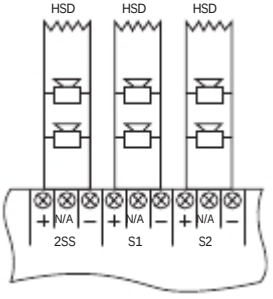


Figure 12-Sounder Outputs

There are 2 pcs. of 24V DC 250mA first level sounder output, 1 pc. of 24V DC 250mA second level sounder output on the panel.

Normally, there is a 16V DC negative voltage on the sounder outputs to control sounder line's short/open circuit conditions.

Enabling conditions of the sounder outputs have been shown at the following table.

Second Level Sounder (Extinguishing Sounder)

"Extinguishing Delay Condition"	1s ON, 1s OFF
During extinguishing operation holds on	1s ON, 2s OFF
"Release Condition"	ON
"After Extinguishing Condition"	
"Unpredicted Release Condition"	
Any other cases	OFF

This sounder output does not be silenced.

Sounder 1 and Sounder 2

Fire	ON
Any other cases	OFF

This sounder output can be silenced.

Panel transmits fault messages if there is over current condition at this outputs.

2x1,5 N2XH or 2x1,5 NYY coded cables should be used for sounder line. The 10K ohm end of line resistance on panel's sounder output should be connected to sounder line's end point. Sounder outputs on the panel act like described above as default. These outputs can be programmed by PC software. Please check the following figure for the programmed sounder output's connection.

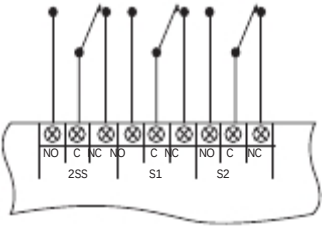


Figure13-Programming sounder outputs for a different output.

16.4 Gas Activated Output

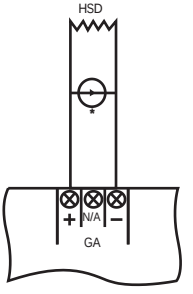


Figure 14-Gas activated output

When "Gas Activated" input has been trigged, "Gas Activated" output has been activated. There is no any "Gas Activated" input on the panel as default. This function can be assigned via panel's main board or ML-3202 expansion card with PC software if requested. "Gas Activated" output's condition depends on the selected feature from "Unsuccessful Ext. Detection" menu step during "After Extinguishing" condition. If "Enable" feature has been selected, "Gas Activated" output only activates "Gas Activated" input has been trigged. If "Disable" feature has been selected, "Gas Activated" output directly activated.

Also "Gas Activated" output directly activated during "Released Condition" and "After Extinguishing" condition as default. At any other cases, "Gas Active" output is in normal condition. Gas active output on the panel acts like described above as default. This output can be programmed by PC software. Please check the following figure for the programmed gas active output's connection.

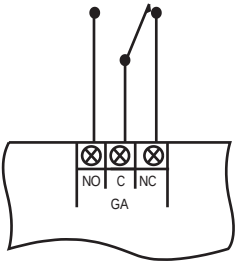


Figure 15-Programming gas active output for a different output

16.5 Relays on panel

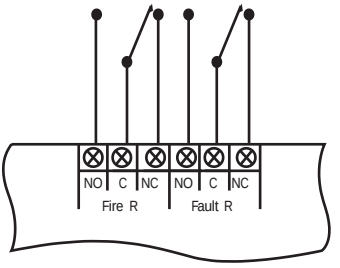


Figure 16- Relays on panel

There are 3 pcs. of 30V DC, 1A relay output on the panel. These volt-free change over relay outputs are; fire relay (normally inactive), alarm relay (normally active) and fault alarm relay (normally active). 2x1,5 N2XH, 2x1,5 NYY or 2x0,8 NYY coded cables can be used for relay output line.

16.5.1 Fire Relay: It is activated on fire alarm condition to changes its contact, and it uses to control any other system. To inactivate the relay, fire condition must be over and the "Reset" button on the panel must be pushed. This output acts like explained at auto learning result, it is also be programmable.

16.5.2 Fault Relay: It's contact changes the position when fault warning situation or if the panel be inactivate. To inactivate the relay, fault condition must be over and the "reset" button on the panel must be pushed. This output acts like explained at auto learning result, it is also be programmable.

Special Note: Fire alarm panel's relay are signal relays. If these relays operates a device as a controller relay, a contactor must be placed. Relay outputs may damages as a result of not using contactor on a high current draw application, this condition it not under guarantee.

16.6 Signal relays on panel

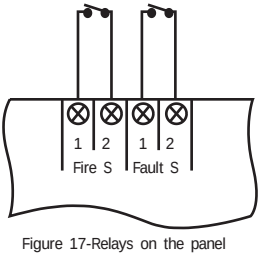


Figure 17-Relays on the panel

There are 2 pcs. of 30V DC 100mA relay output on the panel. These volt-free change over relay outputs are; fire signal relay (normally inactive) and fault signal relay (normally active). 2x1,5 N2XH, 2x1,5 NYY or 2x0,8 NYY coded cables can be used for relay output line.

16.6.1 Fire Signal Relay: It is activated on fire alarm condition to changes its contact, and it uses to control any other system. To inactivate the relay, fire condition must be over and the "Reset" button on the panel must be pushed. This output acts like explained at auto learning result, it is also be programmable.

16.6.2 Fault Relay: It's contact changes the position when fault warning situation or if the panel be inactivate. To inactivate the relay, fault condition must be over and the "reset" button on the panel must be pushed. This output acts like explained at auto learning result, it is also be programmable.

Special Note: Fire alarm panel's relay are signal relays. If these relays operates a device as a controller relay, a contactor must

be placed. Relay outputs may damages as a result of not using contactor on a high current draw application, this condition it not under guarantee.

16.7 Detection zone lines

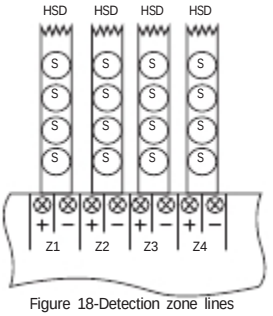


Figure 18-Detection zone lines

Detection zone line inputs have been used to transmit signals to panels: voltage supply of detectors and manual call points (24V DC), fire alarm, short circuit, and disconnected line information. Maximum 20 pcs. of detectors and unlimited numbers of manual call points can be connected to zone line. 1x2x0,8+0,8JY(st)Y coded cable should be used for 0 – 500 meters, and 1x2x1,5+1,5JY(st)Y coded cable should be used for 500 – 1500 meters. Zone 1 and Zone 2 have been used to initiate extinguishing. Zone 3 and Zone 4 have been used to transmit fire alarm.

The zones which will be assigned for to initiate extinguishing operation can be adjusted by PC program. Zone 1, Zone 2, Zone 3, and Zone 4 can be chosen.

16.8 Abort input

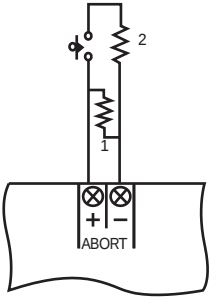


Figure 19-Abort Input

This input has been used to stop the extinguishing delay countdown. Extinguishing is aborted when this input has been trigged. Before "Released Condition" has been completed, when "Abort" input has been trigged or if a fault may be ccurred at this input, the countdown has been stopped. When "Abort" input has been turned back to its normal condition, countdown will be continues. When "Abort" input has been activated or if a fault may be occurred at this input, release operation does not being started. (1: End of line resistance 6K8, 2: Alarm resistance 470R)

16.9 Reset input

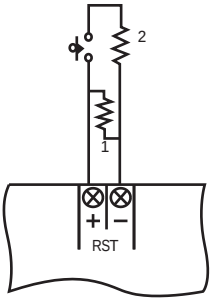


Figure20-Reset Input

This input has been used to reset extinguishing operation when extinguishing delay countdown has been performed. Extinguishing is aborted when this input has been trigged. Before "Released Condition" has been completed, when "Reset" input has been trigged or if a fault may be occurred at this input, the countdown has been stopped. When "Reset" input has been turned back to its normal condition, countdown will be continues. When "Reset" input has been activated or if a fault may be occurred at this input, release operation does not being started.

(1: End of line resistance 6K8, 2: Alarm resistance 470R)

16.10 Extinguishing release input

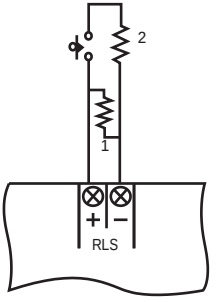


Figure 21-Extinguishing release input

This input has been used to initiate extinguishing operation manually.

(1: End of line resistance 6K8, 2: Alarm resistance 470R)

16.11 Low pressure input

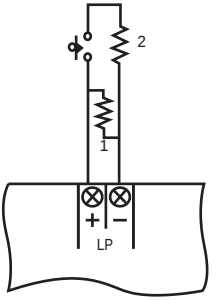


Figure 22-Low pressure input

This input has been used to connect fire extinguishing panel with the output which is activated when the gas level of the extinguisher tube is lower than the expected limit.

(1: End of line resistance 6K8, 2: Alarm resistance 470R)

16.12 Extinguishing condition switch input

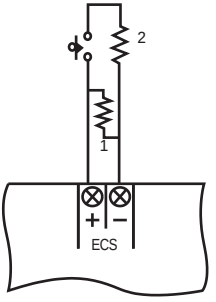


Figure 23-Extinguishing condition switch input

This input has been used to select extinguishing mode remotely. Mode selection operation has been performed by extinguishing switch on the panel or "Extinguishing condition switch" input.

The dominant mode is "Only Manual" mode, so the valid mode in normal condition is "Only Manual". When "Extinguishing condition switch" input has been activated, "Only Manual" condition has been selected, when this is on normal condition, "Automatic and Manual" condition has been selected.

(1: End of line resistance 6K8, 2: Alarm resistance 470R)

17. PANEL EVENTS

At this section, fire and general fault warnings and user's operations at this conditions will be explained.

17.1 Normal Condition

At this condition only "System Enabled" LED and the LED which shown the extinguishing condition (automatic and manual, only manual) have been illuminated.

17.2 Fire Condition

During a fire alarm condition, "Fire" LED's on the panel has been illuminated permanently and zone LED which the related device have been defined flashes. Buzzer sounded and sounder 1 and sounder 2 outputs have been illuminated. Fire and alarm relays have been activated. The alarm cannot be silenced when the key lock on the panel is "off" position, at this condition just buzzer can be silenced. Thus, the key lock must be switched to "on" position for first intervention.

At this position, the fire alarm panel is manageable. At first alarm must be silenced and the location which fire alarm warning comes from must be examined. Hence, sounders must be silenced with pushing "Silence Alarm" button, and panel's buzzer must be silenced with pushing "Silence Buzzer" button.

After controlling the alarmed location "Alarm" button on the fire alarm panel must be pushed. The silenced sounders resounds again when this button have been pushed.

If there the fire alarm is wrong, the cause of the wrong alarm must be cleared and system is passed through to the normal operating mode by pushing "Reset" button.

NOTE: The system does not reset unless the cause of the wrong alarm is cleared.

17.3 Extinguishing condition

Pre-function condition

This is a fire alarm condition for the initiating operation of the extinguishing which panel received fire alarm from any of the zone during Automatic&Manual mode.

Function condition

This condition can be described as follows:

1. When panel is on Automatic&Manual mode, a fire situation happens on two zone which have been used to initiate extinguishing.
2. When panel is on Automatic&Manual mode, a fire situation happens on two zone which have been used to initiate extinguishing and being defined by PC program.
3. "Start Extinguishing" input has been trigged or start extinguishing button on the panel has been pressed when panel is on any of the mode("Automatic&Manual" or "Only Manual").

The condition which was defined on clause 2 is not available as default. The operation type which was described on 1. and/or 2. clause can be selected by PC software.

Extinguishing delay condition

After function condition has been completed, it is the condition when extinguishing delay countdown has been initiating. At this condition, countdown operation on the panel has been displayed on LCD screen.

Release condition

After countdown has been completed, it is the condition when "Extinguishing Delay Condition" has been completed. At this condition extinguishing output has been activated and extinguisher material has been released. After extinguishing output has been activated, extinguishing time has been displayed on LCD screen.

After extinguishing condition

This is the condition when extinguishing time has been over. At the end of this time, "Extinguishing" time has been deactivated. Extinguishing time can be selected as permanently from menu. At this condition, after release condition has been completed, "Extinguishing Output" remain activated and "" until extinguishing operation reset.

Unpredicted release condition

This is the condition which "Gas Activated" input has been trigged even though "Extinguishing Output" does not being applied. Panel keeps this condition until extinguishing reset. There is no any "Gas Activated" input on the panel as default. This function can be assigned to panel's main board by PC software or ML-3202 expansion card if requested. (see Section 14)

17.4 Fault condition

During any of the fault conditions on the panel related fault indication LED and "General Fault" LED have been illuminated, buzzer sounds permanently and fault relay has been activated. Also fault messages have been displayed on LCD screen. During open or short circuit conditions which happens on conventional zone lines "General Fault" LED illuminates permanently and yellow zone LED for the related zone flashes. Fault messages have been displayed on LCD screen. Buzzer sounds permanently and fault relay has been activated. After fault condition has been disappeared panel automatically turn back to its normal operating mode.

18. SYSTEM FAULT CONDITION

Panels behaviors for the whole system faults shows follows:

· System fault and general fault LED's will be illuminates, if there is a currently illuminating LED, they keeps their conditions.

· Internal buzzer sounds.

· System fault messages will be displayed on the LCD. But a system fault that block this may occurs, there fore the true message does not displayed on the LCD.

· Sounders are silenced, and fault relay will be activated.

Authorized person should be called, the system does not works healthy.

18.1 To do list for service personnel

· Panel's front case should be opened.

· Processor MCLR operation should be performed or panel's energy cut down and after 10 second panel reenergized.

· Panel should be restarted.

· After restarting, if panel does not operating properly, panel must be changed with new one.

19. USER CONTROLS AND FUNCTIONS

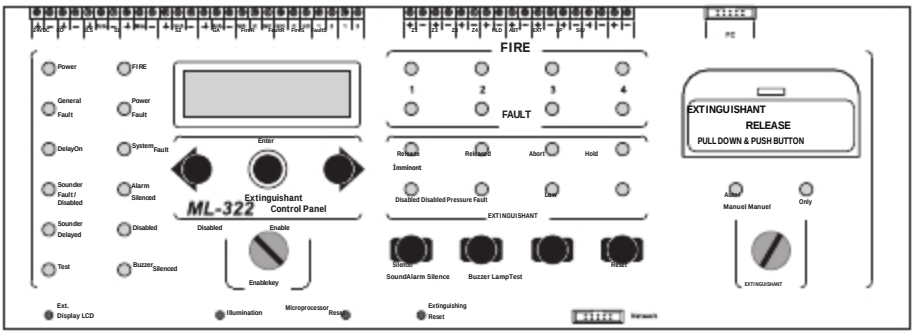


Figure 24-Panel's front side

19.1 PANEL'S INDICATORS

19.1.1 General LED's

Power

"Power" LED permanently illuminates when system energized.

Fire

"Fire" LED permanently illuminates when fire alarm condition continuous.

General Fault

"General Fault" LED has been illuminates with related fault LED during any of the fault condition which happen on the system.

Power Fault

During the following problems "Power Fault" LED will be illuminate: no 220V AC power supply, voltage leakage to ground line, battery fuse blow, 24 V DC external power supply fuse blow, system fuse blow, 220V fuse blow, and problems on batteries or battery connections.

Delay On

If "Delay On" LED has been illuminates it shows that, Delay time has been assigned to sounder output or detection zones from menu.

System Fault

If "System Fault" LED has been illuminates it shows that, the program is not being operated by microprocessor properly.

Sounder Fault / Disabled

During sounder and second level sounder line fault conditions "Sounder Fault / Disable" LED has been flashes, and if sounder disabled it illuminates permanently. When fault condition has been disappeared or disabled sounder has been enabled again, this LED off.

Alarm silenced

When sounders are silenced and alarm relay has been turned back to its normal condition "Alarm silenced" LED has been illuminates

Sounder Delayed

If "Sounder Delayed" LED has been illuminates it shows that, delay time has been assigned to sounder from menu.

Disable

When any of the output or extinguishing system has been disabled, "Disable" LED has been illuminates.

Test

"Test" LED has been illuminates with related zone's LED when there is a test operation has been performed any of the zones.

Buzzer Silenced

When buzzer has been silenced, "Buzzer Silenced" LED has been illuminates.

19.1.2 Extinguishing LED's

The operating types of the extinguishing LED's have been shown at the table below. Detailed information about these listed extinguishing conditions has been described on "Extinguishing Conditions" section.

NAME	0.25s ON, 0.25s OFF	ON	OFF
Release Imminent	"Pro-activity condition"	"Activity condition"	Any other cases
		"Extinguishing Delay condition"	
	During extinguishing disabled and "Released condition" has been satisfied	"Release condition"	
		"After extinguishing condition"	
		"Unpredicted Released condition"	
Released	During extinguishing disabled and "Released condition" has been satisfied	"Released condition" (1)	Any other cases
	"Released condition" (1)	"After extinguishing condition" (1)	
	"After extinguishing condition" (1)	"Unpredicted Released condition"	
Abort	-	When extinguishing aborted	Any other cases
Hold	-	When extinguishing held	Any other cases
Disabled	-	When extinguishing disabled	Any other cases
Manual disabled	-	When manual extinguishing operation disabled	Any other cases
Low Pressure	-	When low pressure input activated	Any other cases
Fault	-	When there is a fault on extinguishing system	Any other cases
Automatic & Manuel	-	When "Automatic & Manuel" mode is valid	When "Only Manuel" mode is valid
Only Manuel	-	When "Only Manuel" mode is valid	When "Automatic & Manuel" mode is valid

(1): "Gas Activated" output's condition depends on the selected feature from "Unsuccessful Ext. Detection" menu step during "After Extinguishing" condition. If "Enable" feature has been selected, "Gas Activated" output only activates "Gas Activated" input has been trigged. If "Disable" feature has been selected, "Gas Activated" output directly activated.

Also "Gas Activated" output directly activated during "Released Condition" and "After Extinguishing" condition as default.

There is no any "Gas Activated" input on the panel as default. This function can be assigned to panel's main board by PC software or ML-3202 expansion card if requested. (see Section 14).

19.1.3 Related Zone's LED's

When there is a fire condition of a device on any of the detection zone related fire led has been flashed.

19.1.4 Related Zone's Fault LED's

When there is a fault of a device on any of the detection zone related fault led has been flashed. If any of the detection zone has been disabled or test operation is performing, fault LED illuminates permanently.

19.2 CONTROL BUTTONS

Enable Key

"Enable key" should be ON to use "Silence / Sound Alarm" and "Reset" buttons on the panel and to enter panel's menu. When "Enable key" is ON, panel's buzzer sounds intermittently along 8 seconds.

Silence / Sound Alarm

If this button has been pressed when there is a fire alarm on the system, sounders have been silenced, "Alarm Relay" turns back to its initial condition, and "Silence Alarm" LED illuminates. If this button has been pressed again during this condition, sounders and alarm relays have been activated.

If "Silenced Alarm / Alarm" button has been pressed when there is no any fire alarm on the system, sounders, buzzer, "Alarm Relay", "Fire Relay", and "Fire Signal" output have been activated. "Fire" LED has been illuminated.

There is no any "Gas Activated" input on the panel as default. This function can be assigned to panel's main board by PC software or ML-3202 expansion card if requested. (see Section 14).

Silence Buzzer

"Silence Buzzer" button has been used to silence buzzer if it is sounded.

Lamp Test

LED's and LCD screen can be controlled by pressing "Lamp Test" button

Reset

This button has been used to reset the system. Activated sounders and relays have been turned back to their initial condition.

Microprocessor Reset

When system features have been changed, system may be restarted again. At this condition microprocessor reset button should be used. "System Fault" LED has been illuminated when there is a problem for the system operation. At this condition microprocessor reset button has been used to restart the system.

Extinguishing Condition Switch

This switch has been used to change panel's mode. (see. Section 16.12).

LCD Brightness

LCD display's brightness can be adjusted from this tripod.

Extinguishing Monitoring

If an activator has been connected to extinguishing output instead of solenoid, with using this tripod end of line resistance's value can be adjusted. (see. Section 16.2).

Extinguishing Reset

Panel does not being reset within 10 minutes since "Operation Condition" has been satisfied depend on default settings. This adjustment can be performed by menu.

If the adjusted time also contains extinguishing time, extinguishing output cannot be reset with the "Reset" button on the panel.

this button is designed only for test purpose.

Enter

When system is on 1st access level, this button has been used to change between information display for same event. This button also has been used to enter menu when system is on 2nd access level. Also this button has been used to select any of the menu step and save adjustments.

Left Arrow Button

If user does not enter any menu step, this button has been used to select event and countdown time. If user has been entered one of the menu step, this button has been used to change menu steps, save adjustments and exit menu steps.

Right Arrow Button

If user does not enter any menu step, this button has been used to select event and countdown time. If user has been entered

one of the menu step, this button has been used to change menu steps, save adjustments and exit menu steps.

20. EXTINGUISHING STATUS INDICATOR UNIT

Status indicator units have been allowed to carry the indicators and controllers on ML-322 extinguishing panel to a different location.

This unit operates by 24V DC supplied voltage and communicates with fire extinguishing panel via network card.

The connection between panel and extinguishing panel's network card has been performed by main card's network socket. Then, the connection between extinguishing panel's network card and extinguishing status control unit has been performed by two connection cable. (for more details please check Extinguishing status Indicator Unit).

20.1 Configuration Adjustment Operations of the Extinguishing Status Indicator Unit

The connection between ML-322 and extinguishing status indication unit should be controlled. Up to 8 pieces of extinguishing status indicator units have been connected to a single ML-322 fire extinguishing panel. An address value between 1 to 8 has been assigned to each extinguishing status indicator unit.

Jumper (J1) on panel's network card which is used to connect end of line resistance should be connected if panel is located on line's beginning or ending.

20.2 Operating Type of the Panel with Extinguishing Status Indicator Unit

When ML-322 panel has been energized, this panel searches extinguishing status indicator units on the network. During this operation the following message will be displayed on panel's screen.

```
Networksetup.
```

After this operation has been completed, available number of the extinguishing status indicator units has been displayed on the screen.

Displayed message's type has been shown at the following figure. The following message shows that, there is one available extinguishing status control unit.

```
UNITS        : 1
```

At least one pc. of extinguishing status indicator unit must be available for panel at the beginning to start operating with status indicator units. If there is no any available status indicator unit, the sets of them will be ignored by the panel. If there is at least one available status indicator unit, than the other status control units have been detected and have been evaluated as unit fault. At this condition "General Fault" LED has been illuminates and buzzer sounds. Related fault message has been shown at the panel's screen. (see LCD messages)

After new unit fault has been occurred, if panel reset new unit fault has been deleted from the system and has been saved on related unit network list.

If reset operation does not being performed, data which are transmitted from unit does not being evaluated by panel.

If the communication between a registered unit and panel has been disconnected, this condition has been evaluated as lost unit fault.

At this condition "General Fault" LED has been illuminates and buzzer sounds. Related fault message has been shown at the panel's screen. (see LCD messages)

After lost unit fault has been occurred, if panel reset, lost unit fault has been deleted from the system and related unit has been took our from network list. If there is a fault at the communication between panel and the whole network, this condition has been assume to be communication fault. At this condition "General Fault" LED has been illuminates and buzzer sounds. Related fault message has been shown at the panel's screen. (see LCD messages) To delete communication fault from system, panel must be

reset. The communication operation between panel and network has been disabled, when there is a communication fault at the system. For more detailed information about extinguishing status indicator unit please check this device's operating manual.

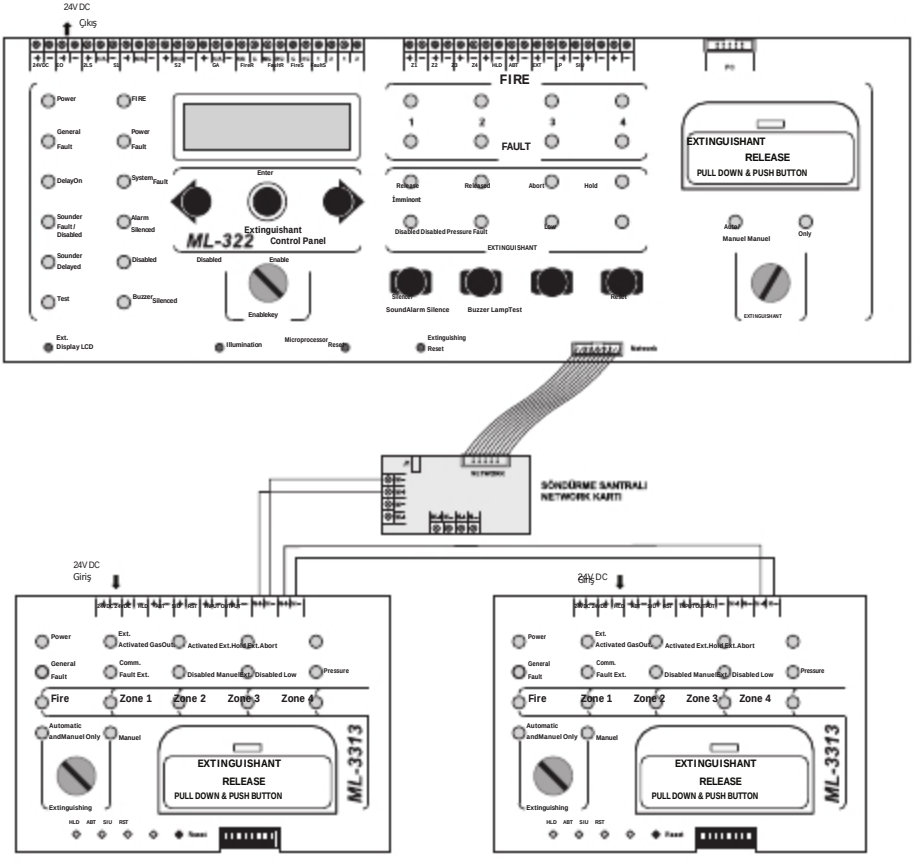


Figure 25-Connection between panel and extinguishing status indicator units

This unit operates by 24V DC supplied voltage and communicates with fire extinguishing panel via network card.

21. OPERATIONS ON THE PERIODIC MAINTENANCE

Periodic maintenance operations must be done by qualified technical personal within 6 months periods to provide the continuity of the proper operation of fire alarm panel and detection systems.

The periodic controls of the fire detection and alarm system includes the followings;

1. Displaying controls of the control panel
2. Control console's tests

a. Control console's LED and display tests

b. Date and time controls

3.Panel's event log control

4. Generating an alarm from at least one detector, one manual call point and one module

The periodic controls of the fire alarm panel includes the followings;

1. Supply system and card's tests

a. Battery test

i. Battery voltage measurement

ii. Battery charge current measurement

iii. Battery load test

b. Supply card test

i. Operating condition test from battery

ii. Battery fault condition test

c. Panel supplied voltage control

d. Lithium battery test

2. Displaying controls of the control panel

3. Internal cleaning of the control panel

4. Control console's tests

a. Controlling console's LED and display tests

b. Controlling access level entries

c. Simulating detection zone alarm activating operation by panel

d. Simulating detection zone activating operation by panel

e. Controlling panel functions by generating fault from site

f. Controlling enable and disable functions by panel

h. Date and time controls

5. Panel's event log control

6. Supervisor service for short-circuit, open-circuit, malfunction operation and contamination trouble shooting.

7. User trainings

The periodic controls of the devices of fire detection system includes the followings;

1. If periodic maintenance operations have been generating at the first time, each devices' address information's must be controlled.

2. If any of the line's element number have been changed between the time of two maintenance period, related line's devices' address information's must be controlled.

3. If there is no change at the number of the elements on line, device activation tests must be done.

4. Device's controls should be done as described below;

a. Cleaning operation, connection controls and tests of the photo-electric smoke detectors whose planned maintenance control date have been reached should be done. Customer's technical service personal have been trained for the unreachable ones.

b. Cleaning operation, connection controls and tests of the heat detectors whose planned maintenance control date have been reached should be done. Customer's technical service personal have been trained for the unreachable ones.

c. Fire alarm buttons activated and controlled.

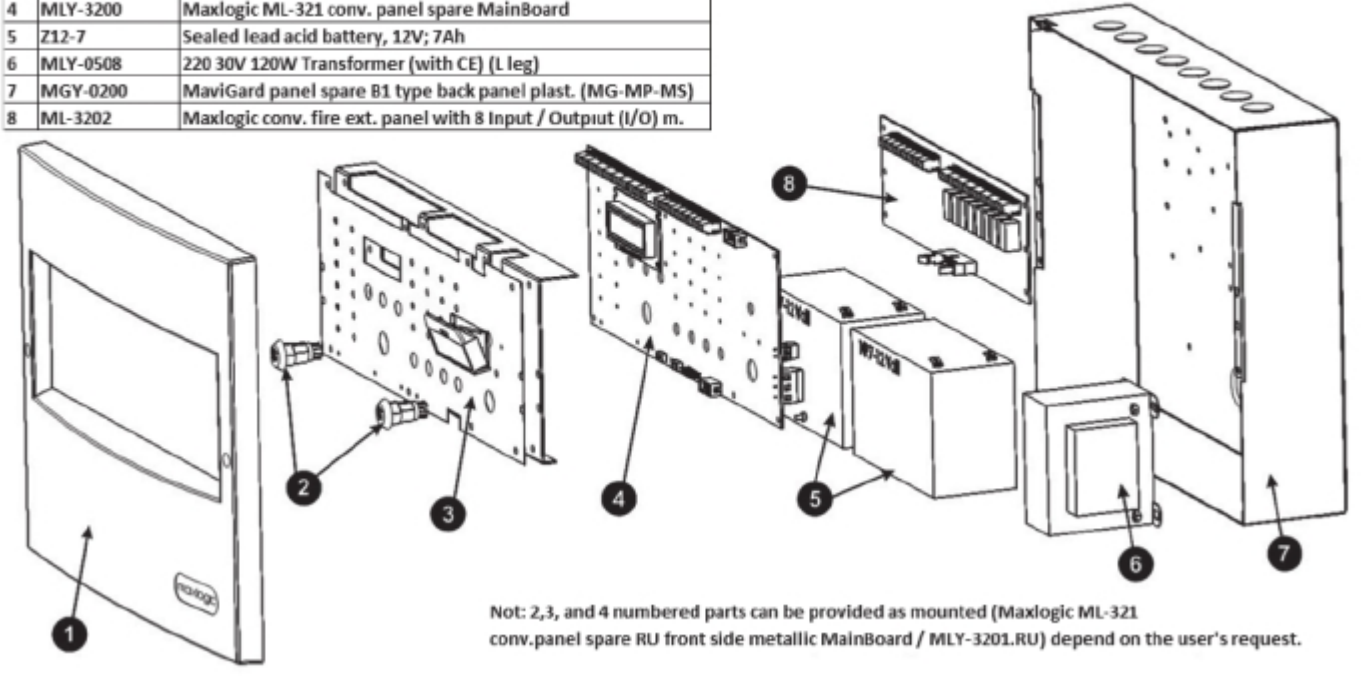
d. 3rd party system's connections at input modules of the fire detection system have been controlled.

5. During the whole periodic maintenance operations fire panel's sounders have been tested.

6. During the whole periodic maintenance operations the functions (dampers, valves with motor, elevators etc.) which are commanded from panel have been controlled.

ANNEX–ML-321SERIESPANELSTRUCTURE

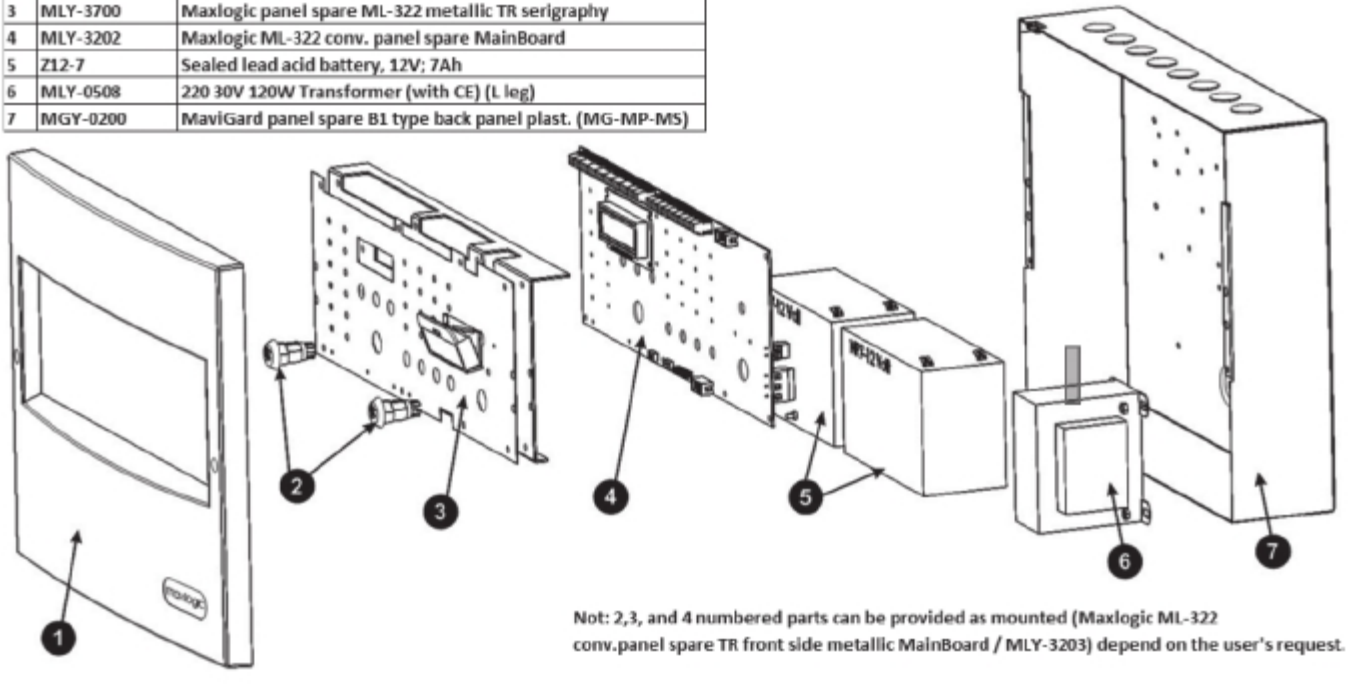
No	Material Code	Material Description
1	MGY-0201	MaviGard panel spare B1 type front panel plast. (MG-MP-MS)
2	MLY-0207	Maxlogic panel spare ML-12XX Function Switch
3	MLY-3702	Maxlogic panel spare ML-321 metallic RU serigraphy
4	MLY-3200	Maxlogic ML-321 conv. panel spare MainBoard
5	Z12-7	Sealed lead acid battery, 12V; 7Ah
6	MLY-0508	220 30V 120W Transformer (with CE) (L leg)
7	MGY-0200	MaviGard panel spare B1 type back panel plast. (MG-MP-MS)
8	ML-3202	Maxlogic conv. fire ext. panel with 8 Input / Output (I/O) m.



Not: 2,3, and 4 numbered parts can be provided as mounted (Maxlogic ML-321 conv.panel spare RU front side metallic MainBoard / MLY-3201.RU) depend on the user's request.

ANNEX–ML-322SERIESPANELSTRUCTURE

No	Material Code	Material Description
1	MGY-0201	MaviGard panel spare B1 type front panel plast. (MG-MP-MS)
2	MLY-0207	Maxlogic panel spare ML-12XX Function Switch
3	MLY-3700	Maxlogic panel spare ML-322 metallic TR serigraphy
4	MLY-3202	Maxlogic ML-322 conv. panel spare MainBoard
5	Z12-7	Sealed lead acid battery, 12V; 7Ah
6	MLY-0508	220 30V 120W Transformer (with CE) (L leg)
7	MGY-0200	MaviGard panel spare B1 type back panel plast. (MG-MP-MS)



Not: 2,3, and 4 numbered parts can be provided as mounted (Maxlogic ML-322 conv.panel spare TR front side metallic MainBoard / MLY-3203) depend on the user's request.

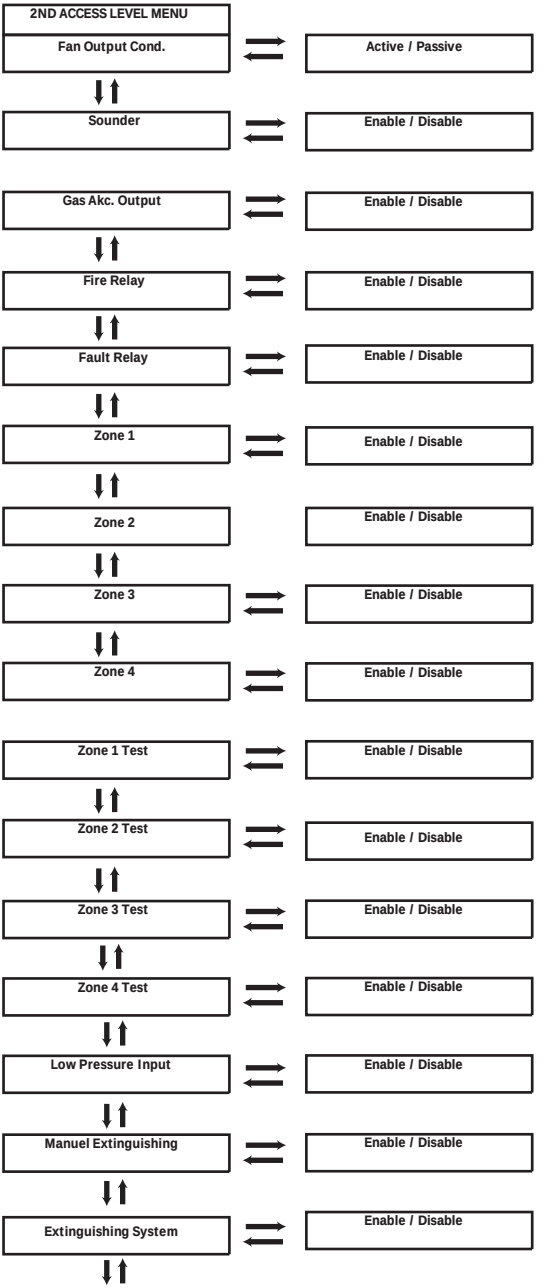
ANNEX - LCD MESSAGES

LCD abbreviation definition:

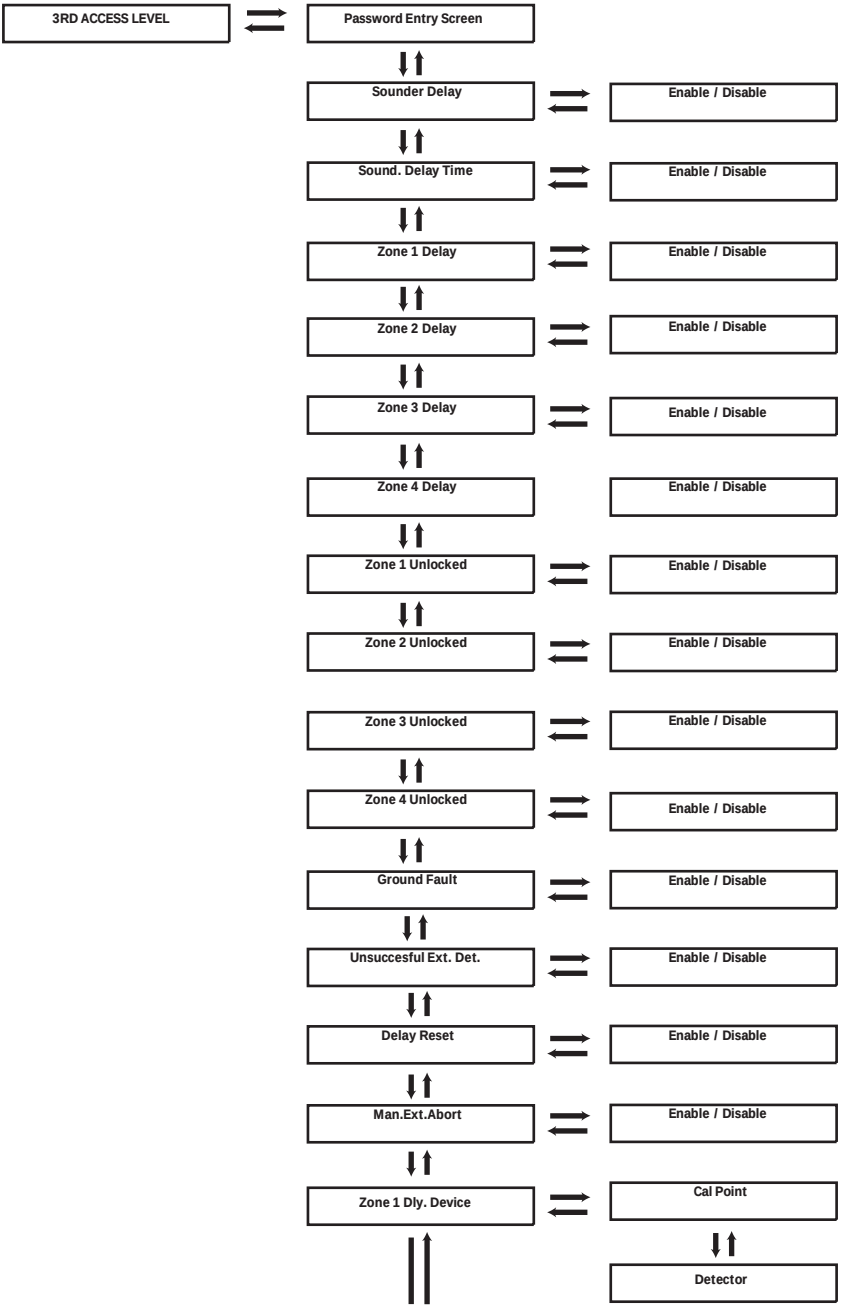
IN03 FLT 003/005 Fault OC IN 03 FLT 003/005 Zone 3 In 02 FLT 003/005 31/03/11 09:57	**1**	**IN:** Input **OUT:** Output	**PNL:** Panel **NT:** Network
	2	Determine which input/output. (If "NT" statement has been displayed on the 1st part, it shows the event source's address.)	
	3	**FRE:** Fire **FLT:** Fault	**ACT:** Active **WRN:** Warning
	4	Show the number of the event depend on the event group*.	
	5	Show the total event number depend on the event group*.	
	6	Describe event	
	7	**SC:** Short circuit **OC:** Open circuit	
	8	Zone or Input / Output function	
	9	Day	
	10	Month	
	11	Year	
	12	Hour	
	13	Minute	

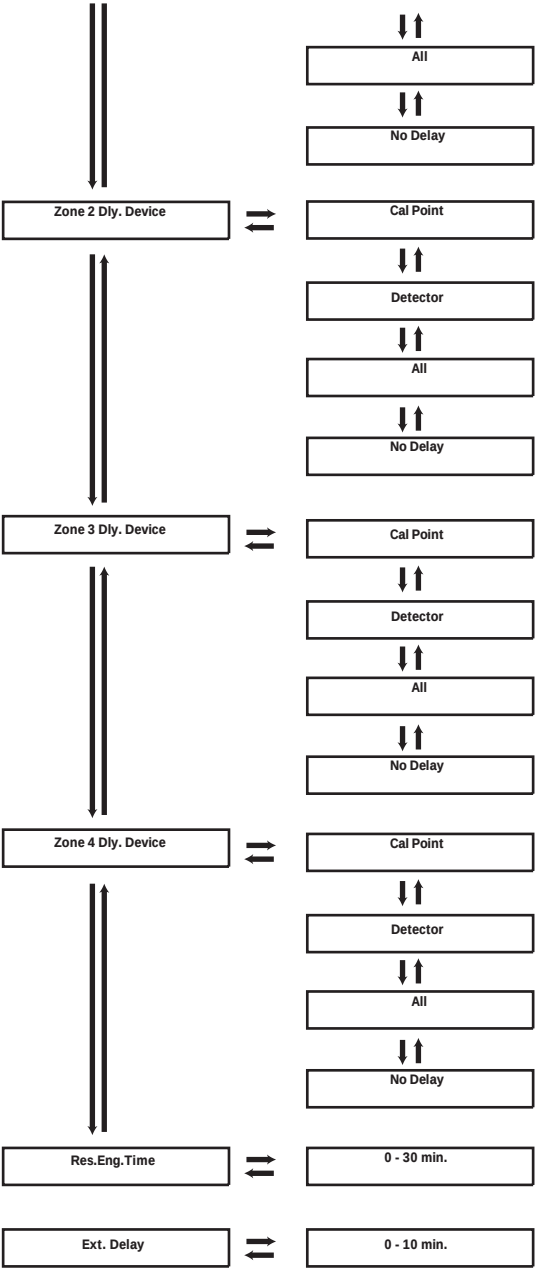
(*): Events are separated by 2 groups as fire events and other events.

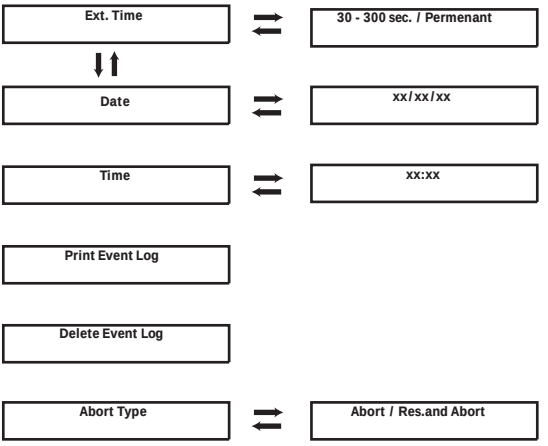
ANNEX - 2ND ACCESS LEVEL MENU STRUCTURE



ANNEX - 3RD ACCESS LEVEL MENU STRUCTURE




All
No Delay
Zone 2 Dly. Device
Cal Point
Detector
All
No Delay
Zone 3 Dly. Device
Cal Point
Detector
All
No Delay
Zone 4 Dly. Device
Cal Point
Detector
All
No Delay
Res.Eng.Time
0 - 30 min.
Ext. Delay
0 - 10 min.


Ext. Time
30 - 300 sec. / Permenant
Date
xx/xx/xx
Time
xx:xx
Print Event Log
Delete Event Log
Abort Type
Abort / Res.and Abort

ANNEX - Definitions of the Terms

A	Ampere – Current
AC	Alternating Current
Ah	Ampere / Hour – Battery capacity.
DC	Direct Current
HSD	End of Line Resistance
I/O	Input / Output
LCD	Liquid crystal display
LED	Light-emitting diode
PC	Computer
PCB	Electronic Circuit Card
V	Voltage

ANNEX - Abbreviations

	DISPLAY
Fan output Cond.	Fan output Condition
Gas Act. Output	Gas Activated Output
Low Press. Input	Low Pressure Input
Sounder Delay	Sounder Delay
Sounder Dly. T.	Sounder Delay Time
Zone 1 Delay	Zone 1 Delay
Zone 2 Delay	Zone 2 Delay
Zone 3 Delay	Zone 3 Delay
Zone 4 Delay	Zone 4 Delay
Zone 1 Non-latch.	Zone 1 Non-latching
Zone 2 Non-latch.	Zone 2 Non-latching
Zone 3 Non-latch.	Zone 3 Non-latching
Zone 4 Non-latch.	Zone 4 Non-latching
Unsucc. Ext.Det.	Unsuccessful Extinguishing Detection
Delay Reset	Delay Reset
Man. Ext. Hold	Manuel Extinguishing Hold
Zone 1 Dly. Device	Zone 1 Delay Device
Zone 2 Dly. Device	Zone 2 Delay Device
Zone 3 Dly. Device	Zone 3 Delay Device
Zone 4 Dly. Device	Zone 4 Delay Device
No delay	No delay
Reset Block. Time	Reset Blocking Time
Ext. Delay	Extinguishing Delay
Ext. Time	Extinguishing Time
Print Event Logs	Print Event Logs
Delete Event Logs	Delete Event Logs
Reset and Hold	Reset and Hold
	FRONT SIDE
EO	Extinguishing Output
ES	Extinguishing Sounder
S1	Sounder 1
S2	Sounder 2
GA	Gas Active
Fire R	Fire Relay
Fault R	Fault Relay
Fire S	Fire Signal
Fault S	Fault Signal
Z1	Zone 1
Z2	Zone 2
Z3	Zone 3
Z4	Zone 4
DLY	Delay
RST	Reset
MEX	Manuel Extinguishing
LP	Low Pressure
MSL	Mode Selection

ANNEX - Mechanical and Outer Environment Specifications

Mechanical Specifications	
Height	300mm
Width	400mm
Depth	100mm
Battery Free Weight	~ 5,9 kg (*)
Body Material	1mm DKp metallic plate
Surface	Epoxy Paint
Mounting Type	Surface, ceiling mounted
Standard Color	Grey tone (RAL 7015), white panel front side

Ambient Condition Specifications	
Operating Temperature Interval	(-5°C)-(+50°C)
Operating Humidity Interval	%0-95 (uncondensed)

Battery Specifications	
Battery	2 pcs. of 12V DC lead oxide
Battery capacit	Max. 7Ah
Battery charge output	(-5°C de 29V DC)-(+50°C 26,2V DC) Temperature compensation
Battery charge current	Max. 1100mA
Battery low voltage fault	21±1 Volt
Battery power off voltage	19±1 Volt
Full battery output current (Imaxb)	5A
Empty battery output current (Imaxa)	3,9 A
Maximum battery internal resistance (Ri max)	0,55 Ω

ANNEX – Input / Output Specifications

Input Name	Quantity	Type
Detection Zone	1	Supervised
Detection Zone	1	Supervised
Detection Zone	1	Supervised
Detection Zone	1	Supervised
Cable specifications for detection zones		1x2x0,8+0,8JY(st)Y for 0 – 500 meters. 1x2x1,5+1,5JY(st)Y for 500 – 1500 meters.
Abort Input 1	1	Supervised / trigged by 470R
Reset Input	1	Supervised / trigged by 470R
Extinguishing Release Input	1	Supervised / trigged by 470R
Low Pressure Input	1	Supervised / trigged by 470R
Extinguishing Condition Switch Input	1	Supervised / trigged by 470R
Cable specifications for inputs	1	There is no any force, the capacity must be 250mA.

Output Specifications

Output Name	Quantity	Type
Extinguishing Output	1	Supervised / 24V DC 1A Max. current = 2A along 2 seconds.
Cable specifications for extinguishing output		There is no any force, the capacity must be 250mA.
2nd level sounder (Extinguishing Sounder)	1	Supervised / 24V DC 250mA
Sounder 1	1	Supervised / 24V DC 250mA
Sounder 2	1	Supervised / 24V DC 250mA
Cable specification for sounder outputs		There is no any force, the capacity must be 250mA. The minimum voltage level must be higher than used device's operating limit after connection.
Gas Activated Output	1	Supervised / 24V DC 250mA
Cable specification for Gas Activated Output		There is no any force, the capacity must be 250mA.
Fire Relay	1	30V DC 1A volt-free charge over relay output.
Fault Relay	1	30V DC 1A volt-free charge over relay output.
Cable specification for relay outputs		There is no any force, the capacity must be 1A.
Fire Signal Output	1	30V DC 100mA volt-free charge over relay output
Fault signal Output	1	30V DC 100mA volt-free charge over relay output
Cable specifications for signal outputs		There is no any force, the capacity must be 100mA.
Reserved 24V output		With 24 V DC 250 mA automatic fuse protection.
Cable condition for reserved 24V output		There is no any force, the capacity must be 250mA. The minimum voltage level must be higher than used device's operating limit after connection.