RM-7000

Sub-panel for ADR-7000 and GUARD 7 addressable fire alarm control panels

Technical instructions

RM-7000Hb100.pdf

Date
Revision 1.00

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1   Introduction

RM-7000 sub-panel allows to display the system operating modes (normal, alarm and malfunction), to silence horns and conduct reset by authorized individuals, having valid access codes.

ADR-7000 and GUARD 7 control panels can be controlled and supervised remotely and from key locations, like the security officer's room, maintenance manager's room etc.

The control panel includes a graphic LCD display, keyboard and internal buzzer. The operating mode of the outputs can be programmed. The sub-panel keys are protected by password, and allow command and control operations.

The communication between the fire alarm control panel and sub-panel is done by RS 485 port (twisted wire pair). Up to 16 RM-7000 sub-panels can be connected to every ADR-7000 and GUARD 7 control panel. Each sub-panel operates in a completely autonomous manner. Sub panel RM-7000 that is connected to a control panel over the internet displays all events related to the panel it is connected to, and the events of panels defined as "partners" on the panel it is connected to. The power supply (24 VDC) to the sub-panel can be supplied as follows:

  A. From the fire detection panel
  B. From an external addressable power supply of the TPS-34A model.

2   Compatibility

RM-7000 is compatible with all models of the ADR-7000 and GUARD 7 series.

3   Operating modes – alarm, fault, supervisory, disabling and test events

During an alarm, fault or supervisory event in the system, the relevant event is clearly displayed by dedicated LEDs that are labeled "Alarm", "Fault" and "Supervisory", respectively. Detailed description is also displayed on the LCD display, including all data necessary to diagnose and resolve the event.

Fire alarms, faults and supervision conditions are defined as Events. When two events or more occur at the same time in the system, the first event (with preference to alarms) will be displayed, and at the same time there will be indication of the number of alarm, supervisory, disabling and fault events and indication of additional events that take place in the system.

Fire alarms have a higher priority than faults, therefore they will displayed first.

To display events by order, use the Next and Previous keys, or the arrow keys.

3.1   Normal mode

A normal mode is defined as a situation where there are no alarms or faults and all inputs and outputs are not disabled. In this state, the green voltage LED is on and it is indicated on the LCD display that the system is quiescent mode (see drawing).

Figure 1: Normal operating mode (the line below the manufacturer logo can be changed)

3.2 Alarm mode

3.2.1 Alarm verification

The alarm verification feature can be set for each device in separate, allowing the panel to ignore momentary and expected false alarms.

When an input device is programmed to verify an alarm, the panel waits for 0 to 50 seconds (by the input device settings), conducts Reset of the device in alarm, and checks if the device is still in alarm state. During the waiting time after the reset operation (120 seconds), the panel immediately enters alarm mode, if another alarm event is received from the same device or from another device, even if it was set to alarm verification.

If only one alarm triggered the alarm verification clock and for a period of up to 120 seconds no additional alarm is received, the alarm verification clock is reset and the panel goes back to normal detection mode.

The panel indicates the alarm verification mode by turning on the alarm verification LED.

3.2.2 Actions in case of an alarm

When an alarm occurs in one of the smoke detection devices or another device, the panel conducts the following operations:

- A description of the device in alarm is displayed on the LCD screen
- The alarm LEDs in the general display area are lit
- The alarm is displayed on the RM-7000 sub-panel, if connected
- The event is recorded in the system's alarm log
- The NAC 1 input is activated
- The **Activated Horns** LED in the general display area is lit
- The **Dialer output** and **Activated Dialer** LED are lit in the general display area, if they are not disabled.
- The internal buzzer of the panel is turned on
- The relays defined as alarm relays are activated .
- The outputs programmed as general outputs and outputs programmed to be activated in case of an alarm on the device, are activated.

3.2.3 Actions performed when pressing the Buzzer Off/Acknowledge key

- The internal buzzer of the panel is turned off.

3.2.4   Actions performed when an event is acknowledged (by pressing the pound key - #)

- The blinking LEDs in the general display area stop blinking, and data are displayed on the LCD display. The LEDs remain on until a reset operation is performed.

3.2.5   Actions performed when an alarm is switched off

The following actions take place when pressing the buzzer enable/disable switch:

- The NAC 1 output is disabled, if set as disabled
- The internal buzzer of the panel is disabled
- The outputs of addressable devices that can be disabled, are disabled
- The **Disabled Horns** LED turns on
- The **Active Horns** LED turns off

3.2.6   Actions performed in case of an additional alarm (two devices are in alarm at the same time)

When an additional alarm takes place (meaning two devices are in alarm at the same time), the panel conducts the following operations:

- Reactivation of all silenced addressable devices, as long as they are set as silenced type 1 (reactivated with each alarm), or silenced type 2 (reactivated when one of the devices on the operation matrix is in alarm).
- The fact that there is more than one event is indicated on the LCD display.
- The outputs of addressable devices that were set to be activated upon an alarm in one of the alarmed devices are activated.

3.2.7   Resetting an alarm

An alarm is manually reset by pressing the **Reset** key on the control panel or sub-panel.

3.3   Fault state

A fault in the system is indicated by a general **Fault** LED. The fault is also displayed on the LCD screen.

3.3.1   The actions performed in case of a fault

Once a fault occurs in the system and is displayed, the panel conducts the following actions:

- The fault data are displayed on the LCD screen. If the fault is on an addressable device, the device's address will be displayed.
- The **General Fault** LED in the general display area turns on. If the addressable device in fault is defined as a horn, the **Horn Fault** LED will turn on instead of the **General Fault** LED.
- The fault is displayed on the RM-7000 sub-panel, if connected.
- The internal buzzer in the control panel is activated.
- The event is recorded on the system's Trouble History log.
- Relays that were defined as fault relays are stopped

3.3.2   Actions performed when an event is acknowledged by pressing the Acknowledge # key.

- The LEDs in the general display area stop blinking. The LEDs remain lit until the fault is resolved

3.3.3   Actions performed when pressing the Buzzer Off/Acknowledge key

- The internal buzzer on the control panel is silenced.

3.4   Supervisory event

In GUARD-7 control panels, there is a supervisory function that complies with the EN and UL standards. In certain cases, an output has to be activated in consequence of a gas pressure drop alarm in a fire extinguishing cylinder, closed sprinkler valve etc. The supervisory function is designed to meet this need. This function allows to control the operating mode of switches, using the fire detection infrastructures.

A supervisory event is not "latched". At the end of an event, the system goes into normal operating mode, with no need for operator intervention.

3.4.1   Actions performed in a supervisory event

Once a supervisory event is received in the system, the control panel conducts the following operations:

- The supervisory event details and address are displayed on the LCD screen
- The **Supervisory** LED in the general display area turns on
- The Supervisory event is displayed on the RM-7000 sub-panel, if connected
- An alarm buzzer is activated
- An event is logged in the system's trouble history
- Supervisory outputs that belong to the same supervisory zone are activated, if configured so.
- Supervisory relays that belong to the activated supervisory zone are activated, if configured so.

3.4.2   Actions performed when pressing the "Buzzer Off" key

- The internal buzzer of the control panel is switched off.

3.5   Disabled mode

Sometimes, the operation of a specific addressable device, region, group or main circuit output of the control panel has to be temporarily disabled. The control panel ignores the disabled devices and does not activate disabled outputs and relays.

A disabled mode of one or more devices or outputs is indicated on the LCD screen, and is indicated by the **Disabled Device** LEDs in the display area.

3.6   Test mode

Test mode allows to test the control panel without activating outputs. Test mode is indicated by the **Test** LED in the general display area.

4 Installation

4.1 Pre-installation planning

4.1.1 Capacity planning

Up to 16 RM-7000 sub-panels can be connected to every ADR-7000 control panel, and up to 3 sub panels can be connected to every GUARD-7 control panel.

4.1.2 Cabling planning – RS-485 communication line

RM-7000 sub-panels are connected to a control panel through four 12-18 AWG strands (cross section area of 0.8 – 3.3 mm^2), a twisted pair for communication with the control panel (RS 485), and a twisted pair for 24VDC power supply from the control panel, or TPS-34A addressable auxiliary power supply. It is recommended to use a twisted pair.

Wiring will be conducted by the RS-485 standards and Israeli standard IS 1220, Part 3 – the stricter of the two. Cables laid over a long distance or between buildings or on roofs have to be shielded.

Cabling from the control panel to sub-panels is made by linear (bus) topology, class B or class A (returns to the control panel).

GUARD 7 control panels support class B connection only.

The maximum total cable length is 1,220 meter.

The assembly is fed by 24VDC power from the control panel or from TPS-34A addressable auxiliary power supply.

TPS-34A addressable auxiliary power supply has to be used when the assembly is installed at a great distance from the control panel or when the sum of currents drawn by consumers in normal operating mode or in alarm state exceeds the maximum permissible current on the main power supply (on the control panel).

4.1.3 Cable planning – 24VDC input

In order to ensure correct functioning of devices that consume high current from the 24VDC power supply, the cable's cross section has to be adapted to the installed units and cable lengths.

The resistance of the line between the 24 VDC power supply and the device fed by it will be calculated such that no device receives a voltage below its specified minimum operating value, and that the total voltage drop will not exceed 2 volts, or a voltage that ensures that the last device on the line receives the minimum operating voltage, according to the manufacturer's data – the stricter of the two.

4.1.4 Cable planning – shielding

Cabling outside of a building should be avoided due to the risk of lightning strikes. If there is no other option, shielded cables must be used. The cable shield has to be connected to ground through the grounding connectors on the control panel.

4.2 Installation

4.2.1 Correct location of the sub-panel

The sub-panel has to be placed in an indoor location. Exposure to outdoor conditions must be prevent to avoid high moisture or dust and air contamination conditions from external sources.

RM-7000 has to be placed on a stable wall, to allow easy access for installation of the output cables, for the maintenance staffs for ongoing operation, and in a place that allows to easily monitor and view the display screen and LEDs.

At the back of the unit, on the top, there are two sliding grooves for installation on the wall. At the bottom, there are two holes to fix the unit.

4.2.2 Connection of the RS 485 communication line from the control panel and 24VDC power supply

> **Note!**
>
> Measure the cabling to ensure there is no short circuit or leakage to the ground before connecting the device to the control panel.
>
> The connection or addition of devices to the control panel will be done as all power sources to the control panel (mains and batteries) are disconnected.
>
> Notify the system manager that the control panel will be temporarily disconnected before adding devices to the control panel.

Connect to the sub-panel the communication line (RS 485) from the control panel or from the RM-7000, before the Com 3 connector (RS 485 out). Connect the communication line to the next device or back to the control panel, in case of class A connection to Com 4 connector (RS 485 in).
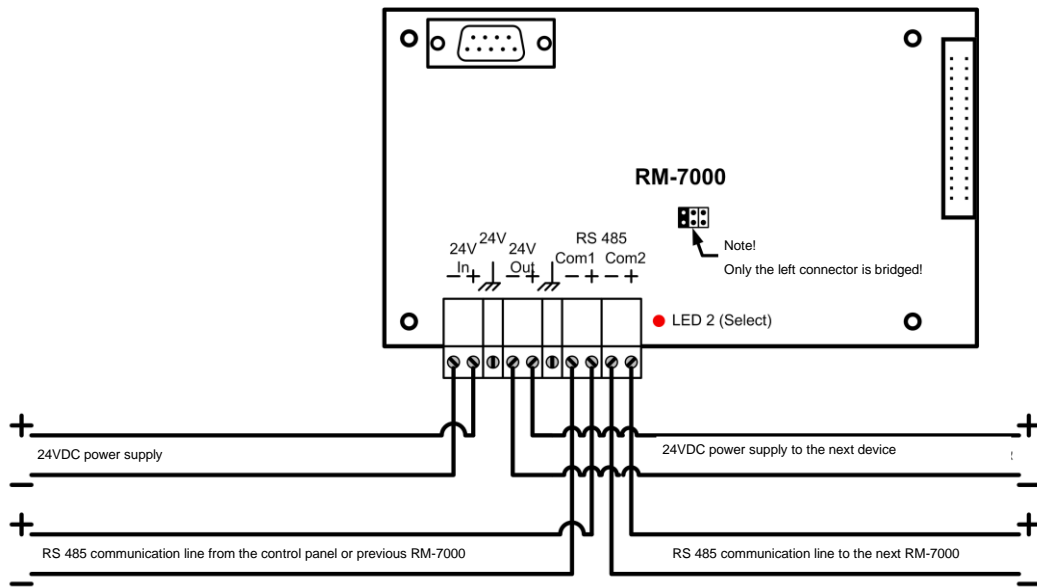
Figure 2: RM-7000 connectors

4.2.3 Menu navigation

Navigation between fields is done using the arrow keys ► and ◄. A value in a field is changed using the arrow keys ▲ and ▼, or using the digit keys, as necessary.

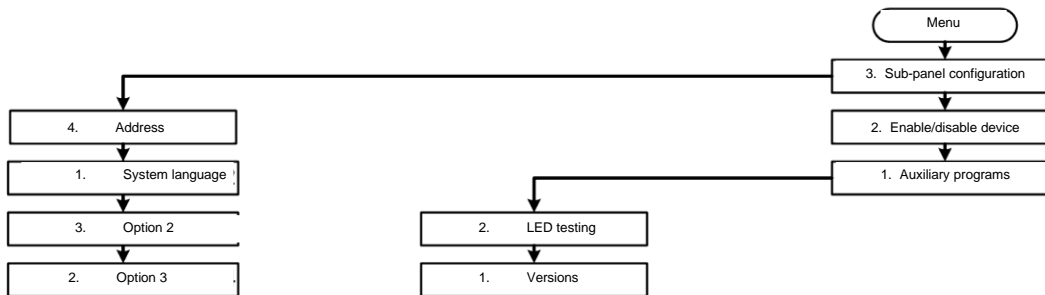Menus can be selected by entering a menu number or by browsing using the arrow keys ▲ and ▼.

Figure 3: RM-7000 menu

4.2.4 RM-7000 configuration – address setting

1. Press the **Menu** key to access the main menu.
2. Enter **1** (sub-panel configuration), enter password (default**: 555555**) and press **Confirm**.
3. Press the left arrow. Enter the sub-panel address and press **Confirm**.

> **Note!**
>
> This address is the sub-panel's address and is not connected to the address of devices on the loops.
>
> The address has to be in the range of 1-16 for ADR-7000 control panels and in the range of 1-3 for GUARD 7 control panels.

4.2.5 Setting the RM-7000 configuration – change of language

1. Press the **Menu** key to access the main menu.
2. Enter **1** (sub-panel configuration), enter password (default: **555555**) and press **Confirm**.
3. Enter **2** (system language) and change the display language on RM-7000.

4.2.6 Settings of the sub-panel on a control panel

Set the sub-panel's address on the control panel as active. See technical instructions of the control panel for additional information.

5 Periodical tests

Fire detection systems have to be tested according to the requirements of the latest Israeli standard IS 1220, part 11.

According to Israeli Standard IS 1220 part 11 (2007), functional tests of the system have to be conducted every six months. The test will be conducted by an authorized company or technician that were certified by the manufacturer.

5.1   Weekly test – will be conducted by the organization's safety manager

The safety manager of the organization has to test the control panel once a week to confirm that all of the following conditions are met:

• The green LED is on.

• All red and yellow LEDs are off and are not blinking.

• The fault buzzer is not buzzing.

• The display shows that the system is functioning and the correct time.

Call the service company if necessary.

6 Warnings and limitations

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Note

The fire/smoke detection system is composed of various components including a control panel, sub-panels, smoke detectors, heat detectors, manual call switches, fire extinguishing activation devices and alarm devices, designed to provide fire and smoke alarms.

The use of the system does not ensure protection and/or prevention of smoke and/or fire damages, yet the system can minimize and reduce fire and smoke damages.

Correct system configuration, including all of its parts, including its infrastructures and installation in accordance with the manufacturer's instructions and in compliance with the relevant standards, is a prerequisite and essential condition for correct and efficient functioning of the system.

The planner and installer must have adequate skills and competencies, and any loss or damage caused due to faulty planning and/or wrong installation shall be under the responsibility of the planner and/of installer only.

In case of any wrong action that causes damage or loss – the consequences will be borne by the party who performed that operation.

The manufacturer shall not be responsible for fires in places where the fire detection systems are installed and/or for fire consequences and/or any direct and/or indirect damage caused to any person and/or property or to third parties as a result of the use of the product and/or its failure to operate.

The system, system names and device names are a registered mark of Telefire Gas and Fire Detectors ltd.

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Note

The system must not be installed, operated or maintained before carefully reading this manual.

7 Technical data

Dimensions (width/height/depth) 58/239/325-mm

Operating temperature range .... -10°C – +60°C

Relative humidity .... 10% – 93% with no condensation

Operating voltage
(supplied by the control panel or external power supply) 24Vdc

Maximum current consumption

Screen switched off mA117

screen switched on mA125

All data are nominal and can be changed without prior notice.

8 Standardization

The equipment complies with the following standards:

- Israeli standard IS 1220
- UL 864 standard
- European standard EN-54
- GOST standard