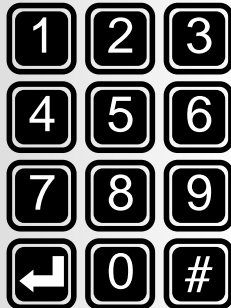


# GM Electric Security Fencing & Alarm Communication System

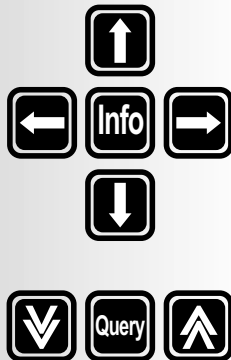
OGIES



Installation

Operation

- Communication failure
- Low battery
- Tamper-comm. card
- Emergency alarm



**G.M.** Advanced Fencing & Security Technologies Ltd.

14 Ta'as St, Industrial zone Kfar-Sava P.O.Box 2327 Zip Code 44425 Israel

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# Introduction

**G.M. Technologies** wishes you success in the installation and operation of the system. We are pleased that you have chosen to use the **GM Electric Security Fencing & Alarm Communication System**.

Please read the Installation and Operation Manual prior to installation. For additional questions please call Technical Department: +972-3-7662965.

G.M. Technologies specializes in providing unique solutions in the field of Perimeter Security Fencing and Alarm Communication Systems. Our company has professional know-how and extensive experience in the field of Electric Security Fencing in particular, and in the field of Perimeter Security in general.

The system consists of unique energiser monitor detection units intended for installation as an electric security fencing system. (The electric fencing unit – Energiser – bears a British Safety Standard mark EN-61011-2, that is known today as the European standard CENELEC-EN-61011-2. In addition, it has been tested and approved by the Israeli Standards Institute as compliant with the requirements of the European standard).

Any intrusion attempt that causes the fence wires to be cut, or which causes a contact between one or more of the fence wires will give the intruder a high-voltage low-current electric shock. This will repel the intruder and at the same time will be detected as an alarm that will activate the existing alarm notification means (Paggers, Monitoring Panels, Siren, Emergency Light, etc.).

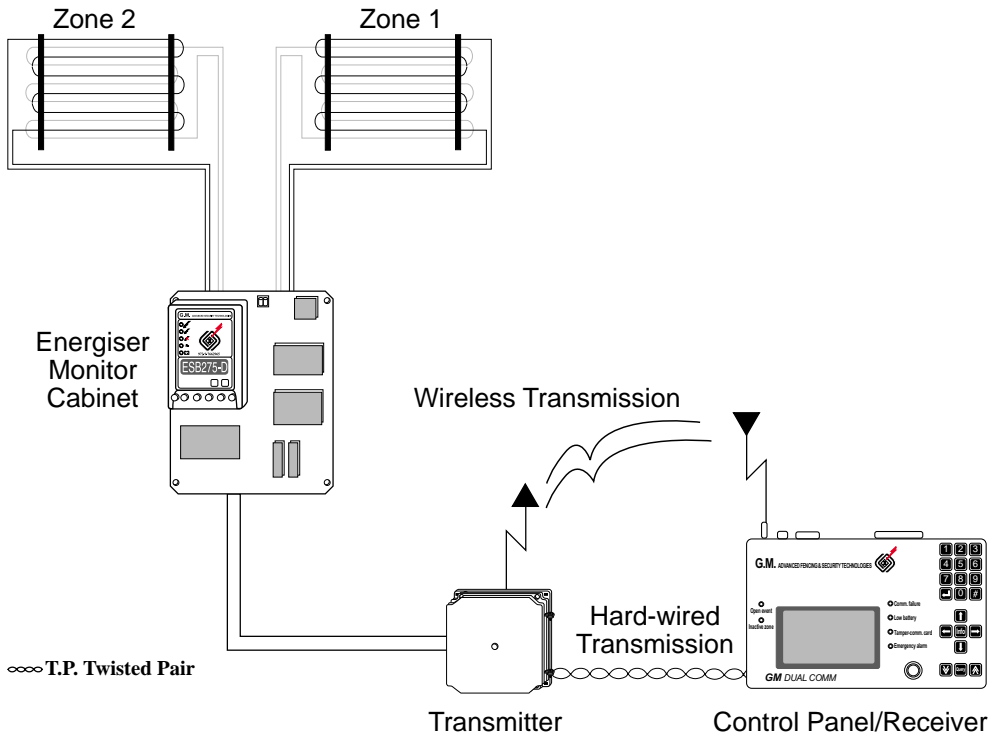
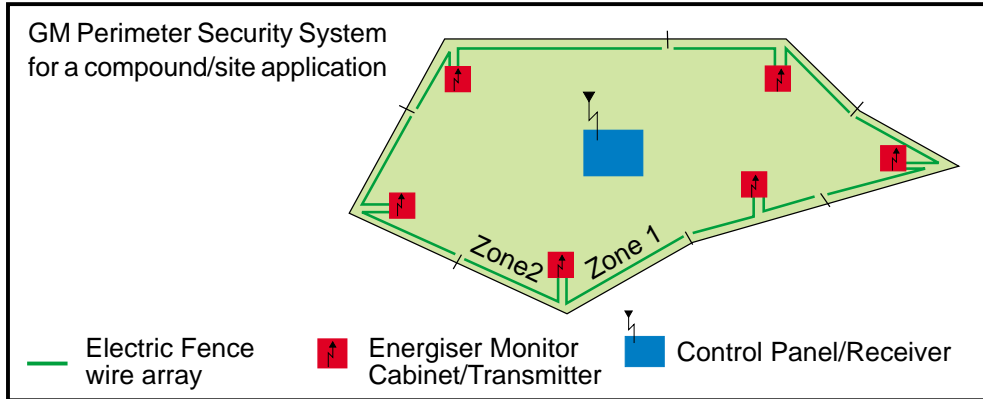
The system uses an innovative adaptive, digital technology that enables its combined use as an electric shock deterrence system as well as an alarm system for the detection of intrusion attempts. The Electric Security Fencing System works with or without the GM Dual Comm. Alarm Communication System.

This innovative electric fencing technology consists of two integrated detection systems - high voltage detection systems and low voltage detection systems. The two integrated detection systems enable all of the fence wires to be detection wires, and provide independent alarms that are used as verification alarms in the event of an intrusion attempt. Another unique and significant advantage, in both the operational and maintenance aspects of the system, is the possibility of easily sub-dividing the supervised zone into sub-zones.

The system is a highly reliable and one that does not require any initiated maintenance activity.

# General

The GM System consists of the following: an Electric Wire Fence Array, an Energiser Monitor Cabinet, a Transmitter and a Control Panel/Receiver. When using a hard-wired connection from the Transmitter to the Receiver one has to use Twisted Pair wires.



# Electric Security Fencing System

**Definition:** The Electric Security Fencing System is installed around the perimeter of a compound/site. The perimeter fence contains a number of zones according to the site conditions and requirements. The Energiser Monitor Cabinet usually controls 2 zones on either side of the cabinet, and the cabinet is usually installed in close proximity to the fence.

The fence is unique, since it monitors all the fencing wires (both high voltage and low voltage wires) using digital technology with adaptive alarm thresholds. In addition the use of insulated fence posts provide a high level of insulation that prevents electricity leakage. The low voltage and high voltage wires are connected to the Energiser Monitor cabinet of the same zone. Each Energiser Monitor cabinet contains a transmitter used for the transmission of events from both zones supervised by that cabinet to the Control Panel/Receiver.

## Energiser Monitor Cabinet

**Definition:** Intended for the transmission of alarms and events to a stationary or mobile control panel by means of advanced alarm communication systems, such as GM Dual Comm., dialer for data transmission, cellular modem, wireless, etc. Supplies high voltage and low voltage to two zones of the electric fence installation. In case of an alarm or event, the Energiser Monitor cabinet sends command signals to the transmitter, which transmits the event/data to the control panel/receiver.

### The Energiser Monitor cabinet contains:

- A sealed cabinet for outdoor installation
- Battery
- Power Supply / Charger /Solar Cell (option)
- 2 Zone High Voltage Energiser
- Communication unit for the transmission of alarms
- Low Voltage Monitor Card
- High Voltage Monitor Card
- Vibration Detector
- Micro-Switch/Tamper for the detection of opening of the Energiser Monitor cabinet door

## GM Dual Comm. Transmitter

**Definition:** The transmitter has the capability of transmitting hard-wired transmissions via Twisted Pair cable, as well as transmitting by wireless transmission. Simultaneous transmission of both hard-wired and wireless transmission is also possible. This feature is one of the most important advantages of the system. In hard-wired applications, the transmitter also serves as a Repeater.

The distance limitation of hard-wired transmission between the transmitter and the receiver or between a transmitter and an additional transmitter (Repeater) is 1.2 km. The transmitter has the capability of transmitting any dry contacts data from any source. The transmitter can therefore be used for uses other than electric fencing applications.

### **The GM DUAL COMM. transmitter contains:**

- BNC Connector for an Antenna
- Connectors for Hard-wired communication (Twisted pair wire)
- Miniature Switches (DIP Switches) to set the transmitter identity (ID)
- 8 Dry Contact Input Connectors
- Power Supply Connector
- Serial Port Connector for connection to a PC (for Programming)

The Transmitter can be used as a stand-alone unit installed in a transmitter cabinet, or integrated into the Energiser Monitor cabinet.

### **GM DUAL COMM. Transmitter Software**

- GM\_TX Software for the programming of the transmitter operation modes, transmission messages, and activation of relays in the control panel/receiver.

## **GM DUAL COMM. Control Panel/Receiver**

**Definition:** The control panel/receiver centralizes the alarms and transmissions from the transmitter units in the compound/site while maintaining an advanced events log. The control panel consists of an LCD display, keyboard, emergency warning lights and relays for the activation of external commands.

The front of the control panel/receiver has a socket for a smart key, which enables access to the events log, acknowledgement of events and execution of commands at two levels of authorization.

### **The Control Panel/Receiver consists of the following:**

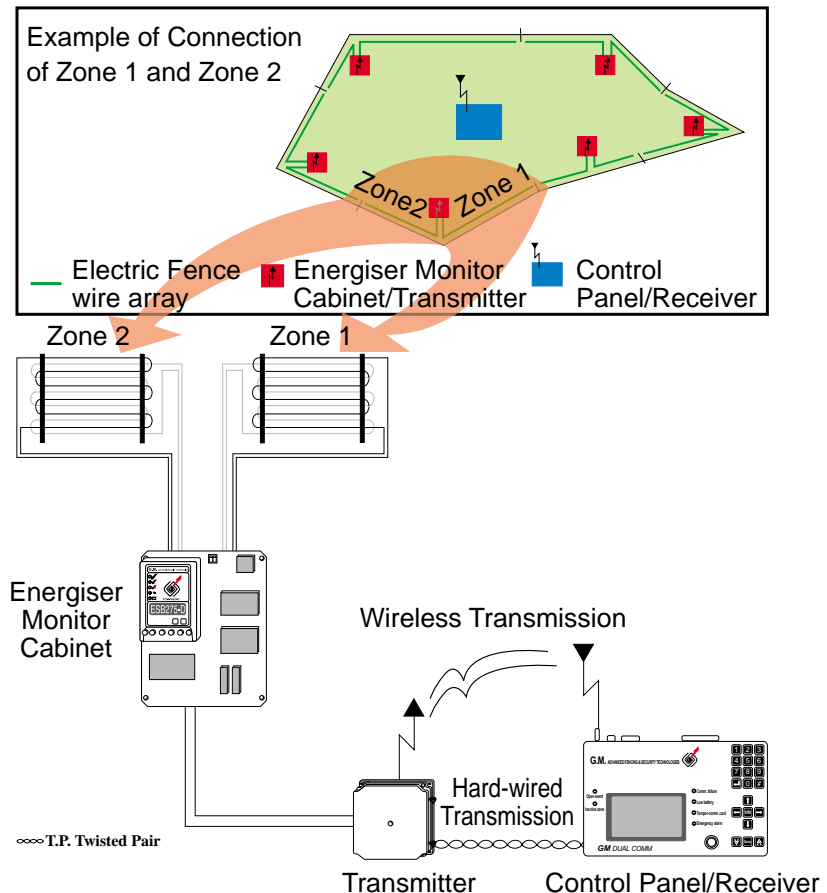
- BNC Antenna Connector
- Smart Key Socket
- Command and Feeding Cable
- LCD Display
- Keyboard for Browsing and Programming
- Printer Connector
- 5 On/Off Relays for the activation of various units, such as: Dialer, Beeper, Internal Buzzer, Flashing light, etc.
- Option for a PC Connector

# Electric Security Fencing System – Installation

The electric fencing system is to be installed by qualified personnel only, and in accordance with the site specification and configuration.

It is possible to install the fencing system on existing fences or as a stand-alone system, according to the individual project/site requirements.

- ✓ Before connecting the Energiser Monitor cabinet, make sure that the mains power is not connected.
- ✓ Each fence zone's wires will be connected to the Energiser Monitor cabinet of that zone and each Energiser Monitor cabinet will be connected to the transmitter of that zone.
- ✓ Connection of the fence to the system will be done only after the Energiser Monitor cabinet has been tested and approved to be fully operational.



# System Installation



## Caution – HIGH VOLTAGE ELECTRICITY

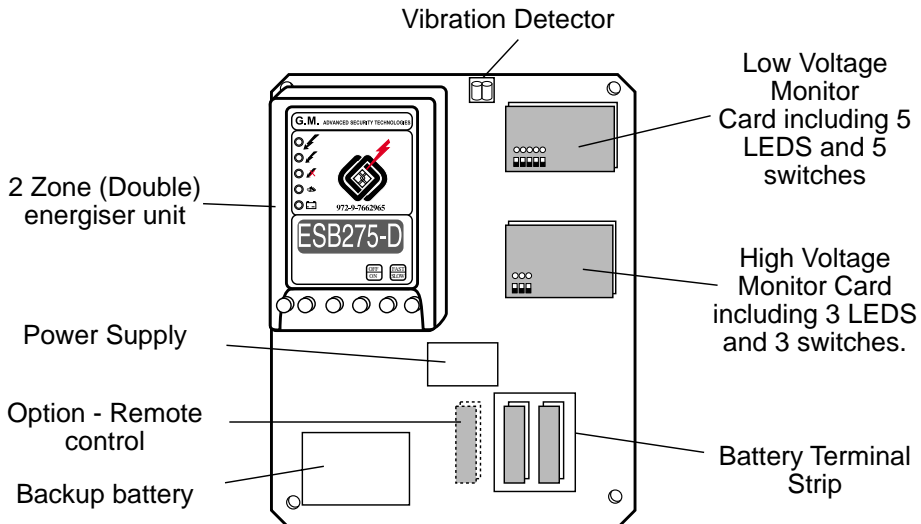
DO NOT to undertake any installation or maintenance procedures when the system is connected to the mains electricity power source.  
Any connection to the mains power is to be completed by a qualified Electrician.

## Energiser Monitor Cabinet

Each Energiser Monitor Cabinet will be supplied with cabinet schematic drawings of the specific cabinet supplied for that particular site.

The drawing below is intended for illustration purposes only.

### Basic Energiser Monitor Cabinet:



There are a number of indicator LEDS on the front panel of the energiser unit:



High Voltage Pulse LED - Operational



High Voltage Pulse LED - Low Voltage on the fence, but still Operational



High Voltage Pulse LED - Not Operational



Not In Use



Low Battery Indicator LED

## Installation and Connection of the Energiser Monitor Cabinet

DO NOT undertake any installation or maintenance procedures when the system is connected to the mains electricity power source.  
Any connection to the mains power is to be completed by a qualified Electrician.

The Energiser Monitor cabinet is to be installed by **G.M. Technologies Ltd**, or authorized representatives trained by GM Technologies. The cabinet is supplied to the installation site after being inspected, tested and approved.

## Connection of a the Electric Fence wires to the Energiser Monitor Cabinet

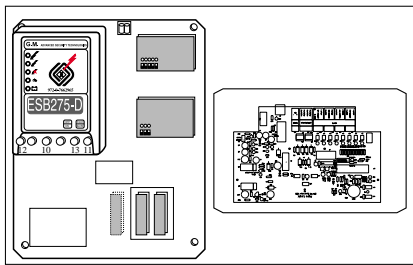
- ✓ Connect the inputs/outputs of the low voltage zones (from the low voltage monitor card) in the Energiser Monitor cabinet to the designated wire loop of the electric fence wire array.
- ✓ Connect the inputs/outputs of the high voltage zones (from the high voltage monitor card) in the Energiser Monitor cabinet to the designated wire loop of the electric fence wire array. Make sure that all the connections are properly connected to ensure a good electrical contact. Any connection that is not properly connected might cause false alarms and irregular operation of the system.

# GM DUAL COMM Transmitter

## Warning !

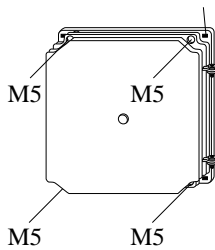
**DO NOT** connect the Transmitter to any power source without connecting the antenna.

## GM Dual Comm. Transmitter Chassis :

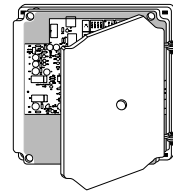


Transmitter for installation inside the Energiser Monitor Cabinet

Fastening Holes of the Chassis



Sealed Chassis for Outdoor Installation

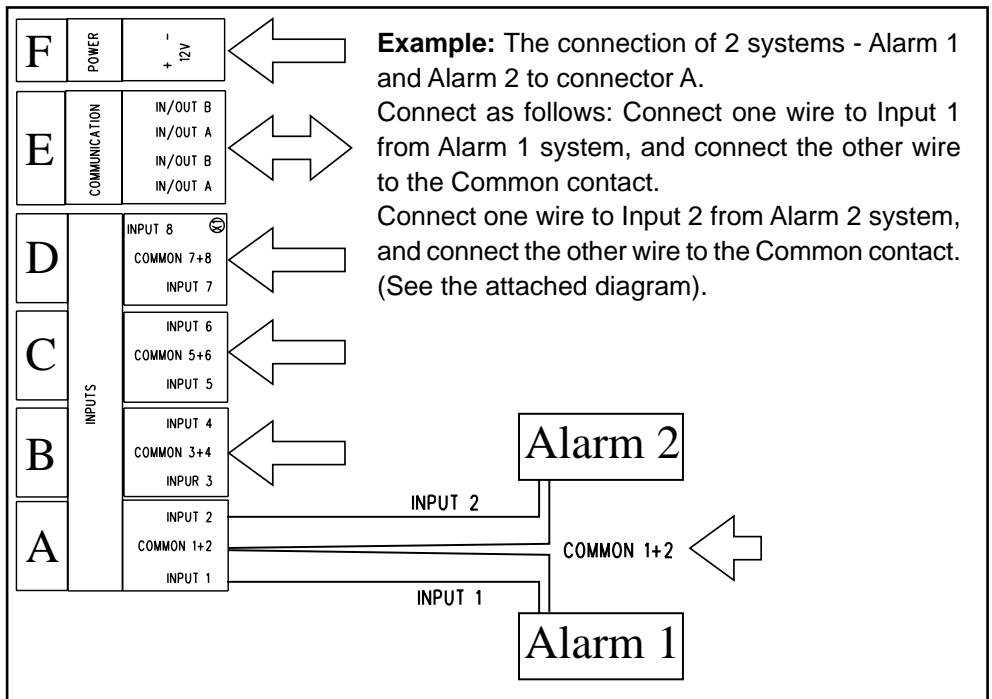


Sealed Chassis for Outdoor Installation with the Transmitter Card

In order to install the transmitter in a sealed chassis, complete the following steps:

- ✓ Fasten the sealed chassis to the wall in the designated places, by means of the 4 fastening screws.
- ✓ Open the 4 M5 screws on the front of the chassis.
- ✓ Connect the command wires (dry contacts) from the main Energiser Monitor cabinet to the sealed chassis. The connection of the wires will be made through the bottom part of the chassis.
- ✓ Connect the antenna cable to the sealed chassis. After inserting the cable into the chassis, connect a male BNC connector to the end of the cable.
- ✓ Connect the male BNC antenna plug to the antenna female BNC connector plug on the transmitter card.

The terminal strip of the transmitter has 8 INPUTS. Each pair of INPUTS has one COMMON contact. Connect the inputs to the terminal strip in order.



- ✓ Connect operating power to the transmitter terminal strip - connector F:  $\pm 12V$ .
- ✓ Close the 4 M5 screws on the front of the chassis. Make sure the screws are fastened for complete sealing.

**IMPORTANT:** No feeding power should be connected to the transmitter card without first connecting an antenna to the transmitter.

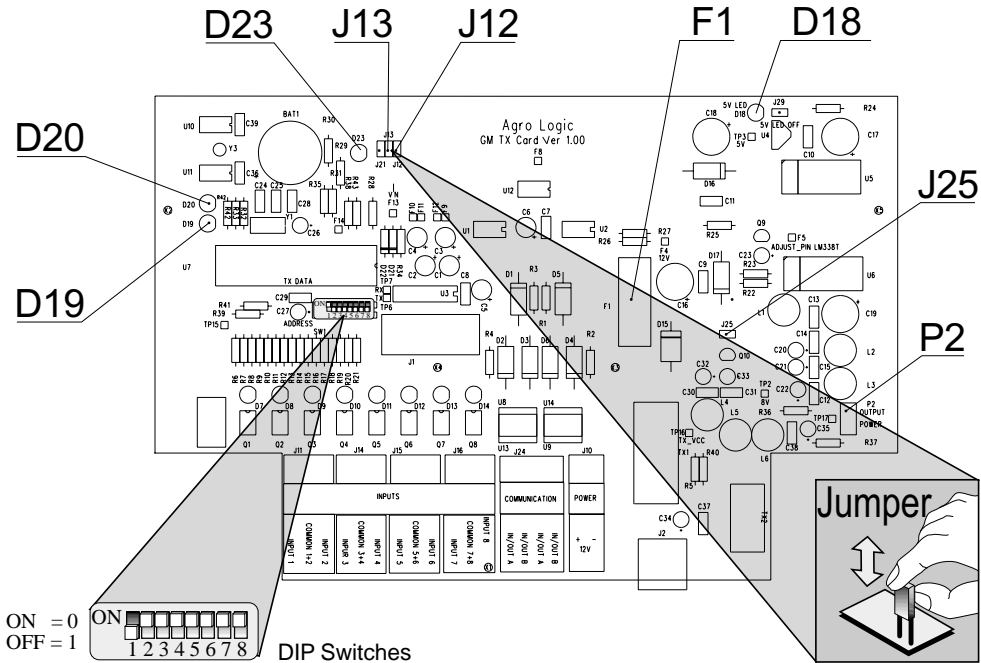
Connect the Energiser Monitor cabinet to the transmitter according to the instruction of **G.M. Technologies**.

## Hard-wired Communication

When installing hard-wired communications, connect the twisted pair communication cable to terminals A and B of connector E. The twisted pair communication cable will be connected to the next DUAL COMM transmitter card, or to the Control Panel/ Receiver.

**Note:** Make sure to connect A to A, B to B, etc.

# Transmitter card (Transmitter Version V1.00)



**P** - Potentiometer

**F** - Fuse

**D** - LED

**J** - Jumper

DIP Switch - miniature switches on the transmitter card, determining the identity (ID) number of the transmitter.

**It is mandatory** to assign the transmitters different numbers, and to set the state of the DIP Switches on the card according to the site transmitter identity.

Example: There are three transmitters in a certain site.	DIP Switches settings
Transmitter No. 1 = number 10000000	ON = 0 OFF = 1
Transmitter No. 2 = number 01000000	ON = 0 OFF = 1
Transmitter No. 3 = number 11000000	ON = 0 OFF = 1

The settings of DIP switches is determined during the programming of the transmitter by giving the transmitter a *Transmitter (TX) Number*.

See explanation on page 17.

## Jumpers and LEDS

There are 3 jumpers and 4 LEDS. See the transmitter card diagram on page 10.

Jumper No.	ON State Short-Circuited	OFF State Disconnected
J-12	Normal Operation State	Transmits messages every 2 seconds in the message order. Transmits all all the messages in order.
J-13	Programming State	Normal Operation State
J-25	Wireless Communication Impossible	Normal Operation State

There are 4 LED's. Please refer to the transmitter card diagram on Page 10.

D-18 - Lights up when the transmitter is active.

D-19 [ Lights up when the transmitter door cabinet is open  
Blinks when the DIP switches do not match the programmed transmitter ID

D-20 - Lights up when a message is being sent.

D-23 - Lights up when the transmitter is in the programming state.

---

### Transmission Power

P2 – Potentiometer (a multi-turn variable resistor), determines the transmission power. When there is no wireless communication between the transmitter and the receiver, one has to turn the potentiometer in a clock-wise direction until the transmission signal is received in the control panel/receiver. An additional half-turn (clock-wise direction) is to be added.

---

### Fuse

F1 – A 1.25 Ampere Slow Blow Fuse.

---

# Transmitter Programming – General

## Requirements:

- ✓ An IBM PC or compatible. Operating System - Windows 95/Windows 98.
- ✓ Basic know-how in operating a Windows 95/Windows 98 Operating System.
- ✓ CD Disk Drive.
- ✓ RS232 Communication Port Connector.
- ✓ RS232 Communication Cable (9 pin male / 9 pin female).

The GM TX software is used to program the transmission message data and system definitions. The programming will be done by means of an updated software program and by a qualified and trained technician.

The programming can be completed in the technician's office as well as at the installation site.

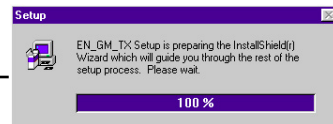
The programming can be done by means of a portable PC.

## Installation of GM TX Software

- ✓ Load the software disk into the CD:\ drive.
- ✓ Wait a few seconds for the installation screen.  
The disk is Autoplay.
- ✓ Select the installation language
- ✓ Select Hebrew or English. Click INSTALLATION.



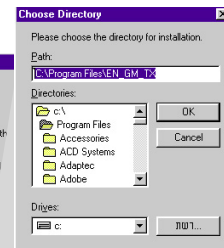
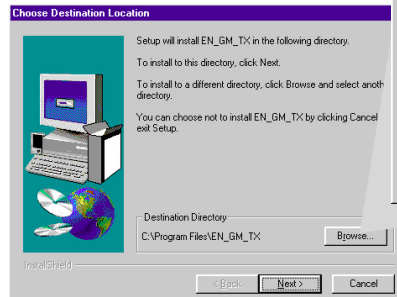
Preparation of the system files will be done automatically:



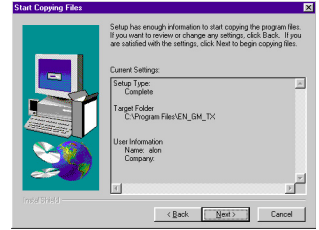
- ✓ Click NEXT to proceed or Cancel to cancel the installation.

Option:

- ✓ Click BROWSE in order to change the location of the files on the hard disk C.



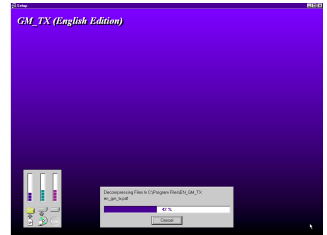
- ✓ Click NEXT to continue installation or BACK, to return to the previous screen, in case you wish to make any changes.



- ✓ Wait for the program to be loaded into the PC memory.



A message will appear advising of the creation of an Icon on the desktop screen.



---

## At the end of the installation:

- ✓ Take out the disk from the CD:\ drive.
- ✓ Move to the Desktop.
- ✓ Double Click on the software icon:  
EN\_GM\_TX.exe  
(This will open the software for programming of the transmitter).



### Please note!

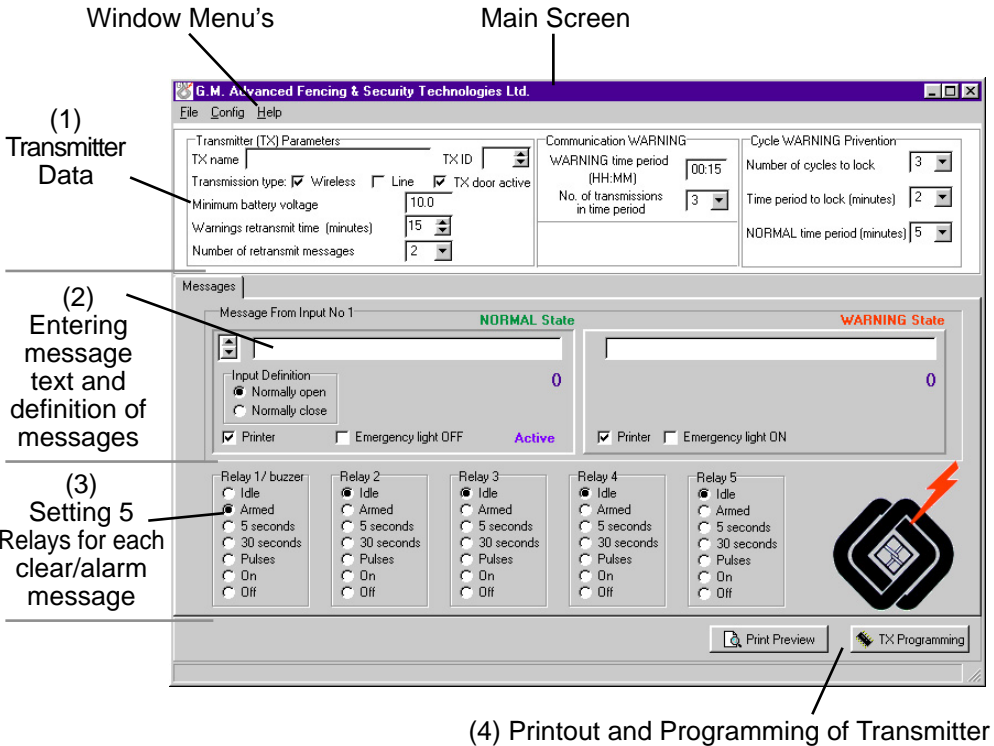
All the files that will be saved by the software will receive the suffix \*.bin.

# Programming Screen

The Software has an interactive main screen that is convenient and easy to operate. The aim of the Software is to program the transmitters installed on site, according to predetermined data of that site.

At the completion of the programming it is recommended to print a printout by connecting a printer to the computer output. The printout should be kept together with the programmed transmitter (for testing and maintenance purposes).

A detailed explanation will be given below on the available modes and method of programming and the available software options.



Main Screen – Window Menus – General (File, Config, Help) - Page 15.

(1) Transmitter Parameters - Page 16.

(2) Entering Message Text and Definition of Messages - Page 21.

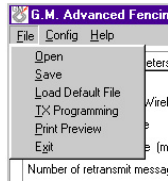
(3) Setting of Relays for each clear/alarm message - Page 24.

(4) Print Preview and Transmitter Programming Operations - Page 25.

# Main Screen – Window Menu’s – General (File, Config, Help)

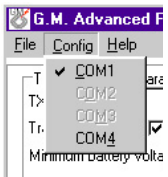
All the files saved by the software will receive the suffix \*.bin.

1. When File menu is selected, the following options are available:



- Open - Open a certain file.
- Save - Save a file with a name (no need to determine file name suffix)
- Load Default File - Open a default file.
- Prog Transmitter - Programming of the transmitter.
- Print Preview - Print preview of the Programmed parameters table.
- Exit - Exit from the software.

2. In the Config. Menu, select one of the free COM outputs of the computer. Set the suitable output for your computer from the following four possibilities:

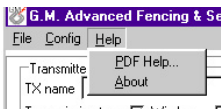


- COM1 - Setting a communication port between the communication card and PC output.
- COM2 - Setting a communication port between the communication card and PC output.
- COM3 - Setting a communication port between the communication card and PC output.
- COM4 - Setting a communication port between the communication card and PC output.



Make sure one of the communication ports is marked with the ✓ sign, otherwise there will be no communication between the card and the PC.

3. When selecting the **Help menu**, the following options are available:



- PDF Help** - Open the training and operation manual - a PDF file.
- About** - A screen providing information about the software, its version and accreditation (recognition of copyright).

## Division of the Main Screen

The main screen is divided into 4 sub-screens:

- (1) Transmitter data
- (2) Entering message text and definition of the messages in the message registration window.
- (3) Definition of 5 relays for each NORMAL/ WARNING message
- (4) Print preview and programming of the transmitter.

### Recommendation

In order to facilitate the entering of messages, we recommend that you use *Note Pad / Word* in parallel with the programming screen. Prepare the message text in advance in *Note Pad/Word*. Copy the relevant message from the note pad/word text and paste it into the corresponding message line.

## (1) Transmitter (TX) Parameters

Transmitter (TX) Parameters		Communication WARNING	Cycle WARNING Prevention
TX name	TX ID	WARNING time period (HH:MM)	Number of cycles to lock
Transmission type: <input checked="" type="checkbox"/> Wireless <input type="checkbox"/> Line <input checked="" type="checkbox"/> TX door active		No. of transmissions in time period	Time period to lock (minutes)
Minimum battery voltage			NORMAL time period (minutes)
Warnings retransmit time (minutes)			
Number of retransmit messages			

### Important



The arrow up symbol increases the current data item in increments of 1.  
The arrow down symbol decreases the current data item in increments of 1.



Selection key opens a window for scrolling to the relevant data value.

## Transmitter (TX) Parameters

Transmitter (TX) Parameters	TX ID
TX name	
Transmission type: <input checked="" type="checkbox"/> Wireless <input type="checkbox"/> Line <input checked="" type="checkbox"/> TX door active	
Minimum battery voltage	10.0
Warnings retransmit time (minutes)	15
Number of retransmit messages	2

### Transmitter Name:

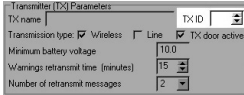
**Definition** - Identifies the location of the transmitter on the site.

- ✓ Sets a name for the transmitter that will be displayed on the control panel /receiver screen when a message is received.

**Note:** The length of the transmitter name along with the message is limited to a maximum of 30 characters.


**Example:** A transmitter receives signals from zones 5 and 6.

- ☞ Set a name for the transmitter: Cabinet 5,6




## Transmitter Number:

**Definition** - The transmitter ID number is limited to a number between 0 and 255. Each transmitter is given a number by the programmer.

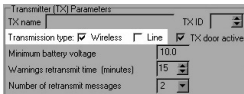
- ✓ Set a transmitter ID number. Click the print preview  button at the bottom of the main screen, in order to set the position of the DIP Switches on the transmitter card (see figure on page 10).

**Note:** The data row on the top part of the table (when viewing the table via print preview ) shows the DIP Switch settings.

**Example:** Transmitter number 1 is equivalent to the binary transmitter number 10000000.

The state of DIP Switches will be set like this  .

- ☞ Set a different ID number for each transmitter.



## Transmission Type

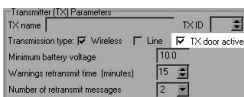
**Definition** - The transmitter can transmit by wireless transmission, hard-wired transmission or both wireless and hard-wired transmission.

Wireless  Hard-wired

- ✓ Set by the required selection by marking the required window .

Active  Not active.

One of the transmission types MUST be chosen.

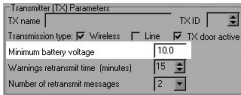


## Transmitter (TX) Door Active

**Definition** - Tamper switch of the transmitter cabinet. Should be set to an active or non-active state.

- ✓ Set the active/non-active state of the tamper switch by marking the corresponding window.

Active  Not active.



## Minimum Battery Voltage

**Definition** - Sets the minimum battery voltage threshold. When the battery voltage of the transmitter goes below the value you have set in this field, a low battery voltage alarm WARNING message will be sent to the control panel/receiver.

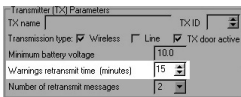
When the battery voltage returns to a value that is higher or equal to the value you have set in this field + 1 volt, a NORMAL battery voltage message will be sent to the control panel/receiver.

☞ Select a new value or continue to program the transmitter.

The range of the minimum battery voltage value is between 8.0 and 15.0 Volt.

**Please Note:** Enter the voltage value to 1 decimal place (eg. 10.1 V).

**Note:** Any number that is not within this range will not be accepted.

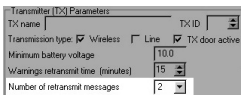


## Warning Retransmit Time

**Definition** - In the event of continuous or ongoing alarms, the transmitter will retransmit messages repeatedly every X minutes. The amount of minutes is to be set using the arrow up/down button found to the right of the value (minutes).

The warning retransmission time range is between 5 and 120 minutes.

**Note:** Any number that is not within this range will not be accepted.



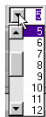
## Number of Retransmit messages

**Definition** - This window sets the number of times messages will be retransmitted to the control panel/receiver.

☑ **Please Note:** There is a selection button to the right of the number.

☞ Pressing the selection button will cause a vertical window to open up for the selection of a different number. It is possible to set the number of transmissions in a range between 1 and 20. Select a new value or continue to program the transmitter.

**Note:** Any number that is not within this range will not be accepted.



## Communication Warning

Warning Time Period (HH:MM):

**Definition** - Time set for the sending of a "transmitter alive" message from the transmitter to the control panel/receiver. If during this time period no "transmitter alive" message is received – a "No communication" warning message will appear on the control panel/receiver screen.

☞ Set a number in minutes MM and in hours HH.

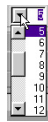
## Number of Transmissions in time period

**Definition** - Sets the number of "transmitter alive" messages that will be transmitted during the time period chosen in the previous window (Warning Time Period)

☞ **Please Note:** There is a selection button to the right of the number.

☞ It is possible to set the number of transmissions in the range between 1 and 20. Select a new value or continue to program the transmitter.

**Note:** Any number that is not in this range will not be accepted.



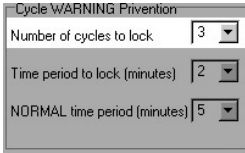
## Cycle Warning Prevention

**Definition:** Cycle warning prevention is a series of repetitive alarms received from one of the transmitters inputs. This series of alarms has a detrimental affect on the reliability of the system and can mislead the control panel/receiver operator. In order to prevent this occurrence and in order to maintain the reliability of the system it is necessary to set the parameters of this window.

**Example:** A piece of paper, moving branch etc causes the electric fence to alarm – return to normal state – alarm – return to normal state etc. In so doing a series of repetitive alarms has been created. In order to prevent this it is necessary to set the number of cycles to lock. A cycle is a single alarm that returns to a normal state.


**Number of cycles to lock** - The number of repetitive alarm cycles during the Time Period to Lock. At the end of the process the system will be in a permanent alarm status.


This permanent alarm status will be cancelled only if this input will be in a "**Normal Time Period**" for the length of time set in this window.



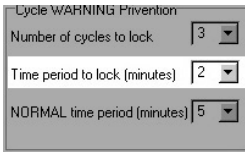
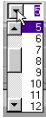
## Number of Cycles to Lock

**Definition** - The system samples the repetitive alarms according to the value set in this window. At the end of the number of cycles to lock the system will show the alarm as a permanent alarm.

 **Please Note:** There is a selection button to the right of the number.


 This button will open a vertical window that enables the selection of a different number. It is possible to set the number of cycles to lock in a range between 1 and 5.


**Note:** Any number that is not within this range will not be accepted.



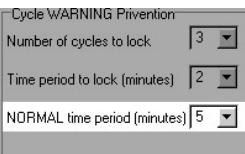
## Time Period to Lock (minutes)

**Definition** - The time period for cycle warning prevention.

 **Please Note:** There is a selection button to the right of the number.


 This button will open a vertical window that enables the selection of a different number. It is possible to set the time period to lock in a range between 1 to 10 minutes (integer values of minutes).


**Note:** Any number that is not within this range will not be accepted.



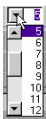
## NORMAL Time Period

**Definition** - This window sets the time required for the system to return to a NORMAL status (no alarm condition) from a specific transmitter input. Once the conditions have been met, a message canceling the permanent alarm to a normal status will be transmitted.

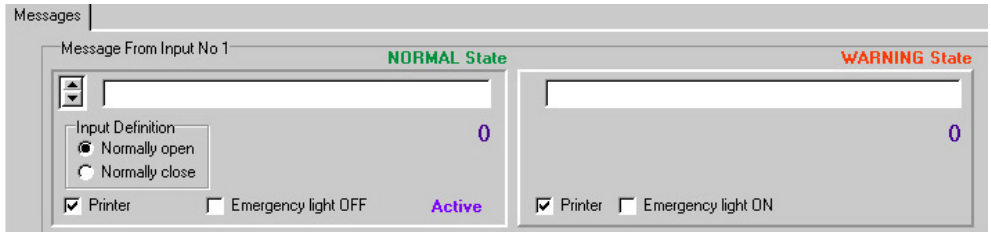
 **Please Note:** There is a selection button to the right of the number.

 This button will open a vertical window that enables the selection of a different number. It is possible to set the NORMAL time period in a range between 1 to 30 minutes (integer values of minutes).

**Note:** Any number that is not within this range will not be accepted.



## (2) Entering Message Text & Definition of messages



This screen enables the user to define the alarms received from the inputs and enter the warning and normal state message text. In the case of an alarm/event the message entered in this window will be transmitted directly to the control panel/receiver screen.

Please make sure that the messages are clearly entered without mistakes. The user can easily modify the message text.

The screen is divided as follows:

On the left - *Message from Input Number 1 (NORMAL State – in Green)*

**Note:** There are 10 NORMAL state messages.

On the right - *Message from Input Number 1 (WARNING State – in Red)*

**Note:** There are 10 WARNING state messages.

The word "active" in blue on the lower right hand side of the NORMAL and WARNING state windows indicates which respective screen is active.

Pressing the mouse on the NORMAL state screen causes the window to be indented. The word "active" will appear in blue. Pressing the mouse on the WARNING state screen causes the window to be indented. The word "active" will disappear from the NORMAL state window and appear in the WARNING state window. At the same time the NORMAL state window will return to its original position and the WARNING state window will be indented.

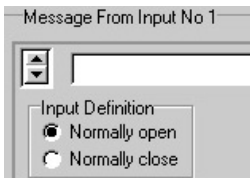
### Entering Message Text in the Message Window

#### Example:

NORMAL state message: **West gate closed.** ALARM state message: **West gate open.**

The message text can be up to 30 characters in length. This INCLUDES the number of characters appearing in the name of transmitter.

The number of characters entered for each message will appear in BLUE under the message window. Should more than 30 characters be entered, this number will change to RED, and the addition of more characters will not be allowed.




- ✓ INPUT DEFINITION enables the selection of a closed contact or open contact for each individual input. When a NORMALstate – open contact is selected, it will not be possible to select any other contact for that input. The input definition windows appear on the NORMAL state screen only.
- ✓ It is a possible to print the message from each separate input by marking the PRINTER window for each individual input.  Printer
- ✓ It is possible to define any of the alarms received by the control panel/receiver as an emergency alarm. This will turn on the emergency alarm light on the control panel/receiver.


All the definitions accompanying a message belong to that particular input message. In addition to the definition of a message, it is possible to activate up to 5 active relays for each message. See page 24, Setting of Relays.

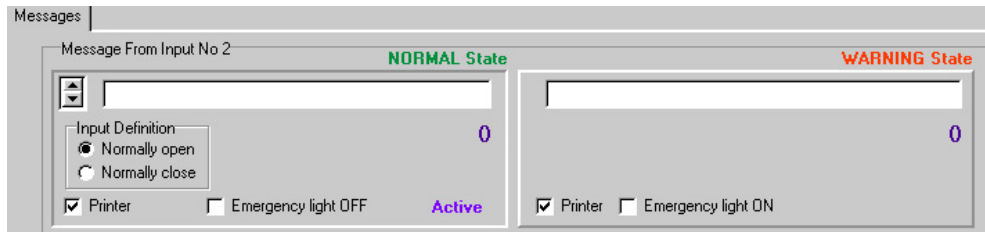
After entering the text of message number 1 in the NORMAL state and message number 1 in the ALARM state, together with the additional definitions, it is possible to start entering the text of message number 2.

☞ Setting the **Relays** will be done separately for the ALARM state and for the NORMAL state. For the setting of Relays – please go to page 24 section (3). If you are not using Relays – please move to the next section below.


**Please Note:** On the left there are 10 messages for listing in the NORMAL state. On the right there are 10 messages for listing in the ALARM state.

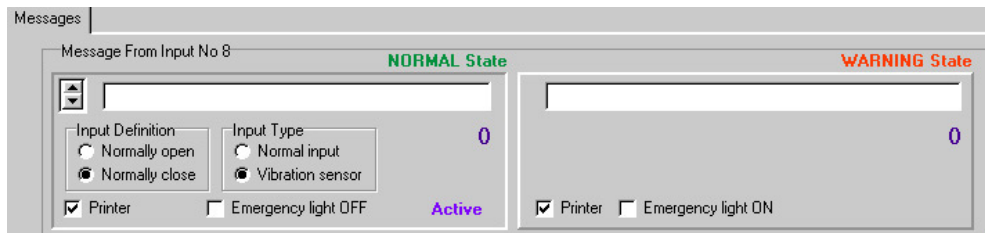
 There is an UP/DOWN selection button on the left side of NORMAL state message.

In order to move **to message number 2**, press the upper part of the selection button ( upper triangle).

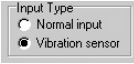


The entry and definition of messages 1 to 7 is identical in operation, but different in content and definition.

In order to move to **Message Number 8**, press the upper part of the selection button ( upper triangle).

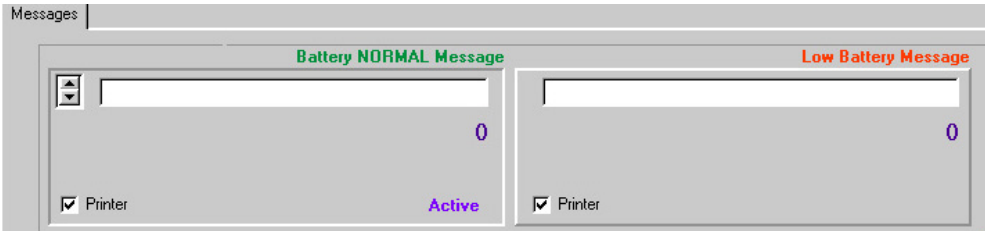


In message no. 8 it is possible to define the input type as a normal input or as a vibration sensor input. This is in addition to the input definition, printer and emergency light definitions. The vibration sensor will be activated in the event of anyone tampering with the entire Energiser Monitor cabinet.



Select and mark as a **Vibration Sensor (Detector)** or a **Normal Input**.  
Then, select and mark the input definition: **Open Contact** or **Closed Contact**.

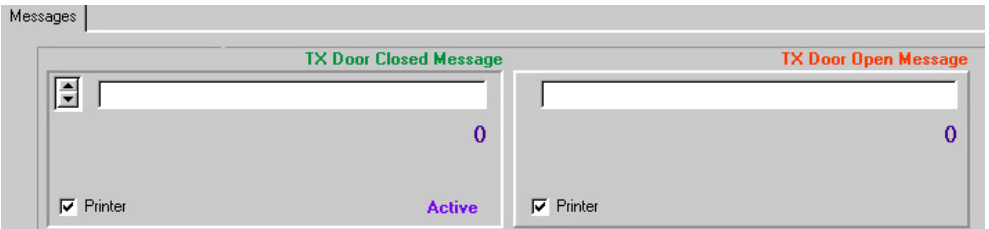
## Low Battery / Battery NORMAL message



This message will be transmitted if the battery voltage falls below the value defined in the Minimal Battery Voltage parameter. (the emergency light for low battery voltage will light up). Alternatively the battery NORMAL message will be transmitted when the battery voltage rises above the value (+1 Volt) set in the Minimum Battery Voltage parameter (The emergency light for low battery voltage will be extinguished).

**Please Note:** It is possible to select printing state for this message by marking the printer window.  Printer

## Transmitter (TX) Door Closed Message / Transmitter (TX) Door Open Message

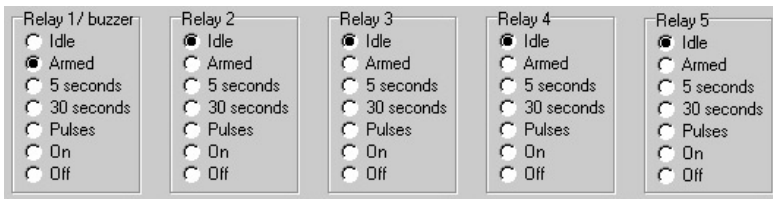


The window of the TX door open/closed message will appear only if the TX door active window (in the Transmitter (TX) parameters section) is marked .



The messages entered in the Transmitter Door Closed Message (Green) and Transmitter Door Open Message (Red) will be transmitted to the control panel/receiver when the transmitter door has been opened or closed.

### (3) Setting of 5 Relays for each NORMAL state / ALARM state message



The Control panel/receiver has 5 active relays (see diagram of PCB – page 30). The relays are activated according to the settings made on this screen.



With the aid of a mouse it is possible to mark and select one option for each relay.

The activation of Relay No. 1 / Buzzer activates the internal buzzer of the control panel/receiver. The relay and buzzer are connected in parallel.

#### States of the Relays:

- ✓ **Idle** - This state does not affect the relay.
- ✓ **Armed** - The relay will be armed and will move to the ON state. The relay will stay ON until the smart key is inserted into the smart key socket on the control panel/receiver. After acknowledgement by the smart key the relay will reverse its state to OFF.

**Important! The only condition** for changing the state of the relay by the smart key is: In the control panel/receiver system programming - row 8 in the menu screen will be:

8. Button Relay Off 1 2 3 4 5

See the detailed explanation of the control panel/receiver menus operation on page 38.

- ✓ **5 seconds** - the relay will be armed for 5 seconds
- ✓ **30 seconds** - the relay will be armed for 30 seconds
- ✓ **Pulse** - the relay will reverse its state from OFF to ON and back to OFF and again to ON, etc. The relay waits for the smart key in order to change its state to OFF.
- ✓ **ON** - the relay will change its state to ON.

**Important! The only condition** for changing the state of the relay by the smart key is: In the system programming – row 8 in the menu screen will be:

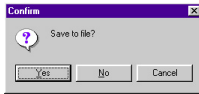
8. Button Relay Off 1 2 3 4 5

See the detailed explanation of the control panel/receiver menus operation on page 38.

- ✓ **OFF** - the relay will change its state to OFF. The smart key does not affect the relay in this state.

Setting the state of the relays separately for each message (alarm).

If you are entering message number 1, and you have defined the relay and its state, return to page 22 and continue writing the other messages. In case you have finished all the messages - continue.



At the end of programming or when exiting the software, a SAVE message will appear. You have to approve or cancel the SAVE message.

For approval – you will be asked to enter the name of the file to which you wish to save all the defined data.


For cancellation – the main screen will return to its initial state.

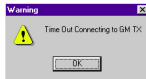
## (4) Print Preview and Transmitter Programming Operations



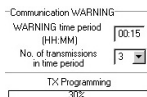
The transmitter programming operation is executed when you have defined all the transmitter parameters.

**Without completing the programming operation, the transmitter will not be programmed.**

- ✓ Connect the communication cable from the PC to the 9 pin connector on the transmitter card.
- ✓ Set the J-13 Jumper to the Programming state (bridged).
- ✓ Check that the antenna is connected properly to the transmitter card.
- ✓ Connect + 12V feeding power. (check that LEDS D-23 and D-18 are on).
- ✓ Click on the Transmitter (TX) Programming button 



**Note:** If there is a communication failure between the PC and the transmitter, the programming progress window will stop and/or will not appear at all. After waiting 12 seconds a message or warning will appear, advising that the programming action has not been executed.



✓ Click on OK. Disconnect the  $\pm 12V$  power feeding connector for 5 seconds.


✓ Re-connect the  $\pm 12V$  power feeding connector, and re-execute the programming of the transmitter.

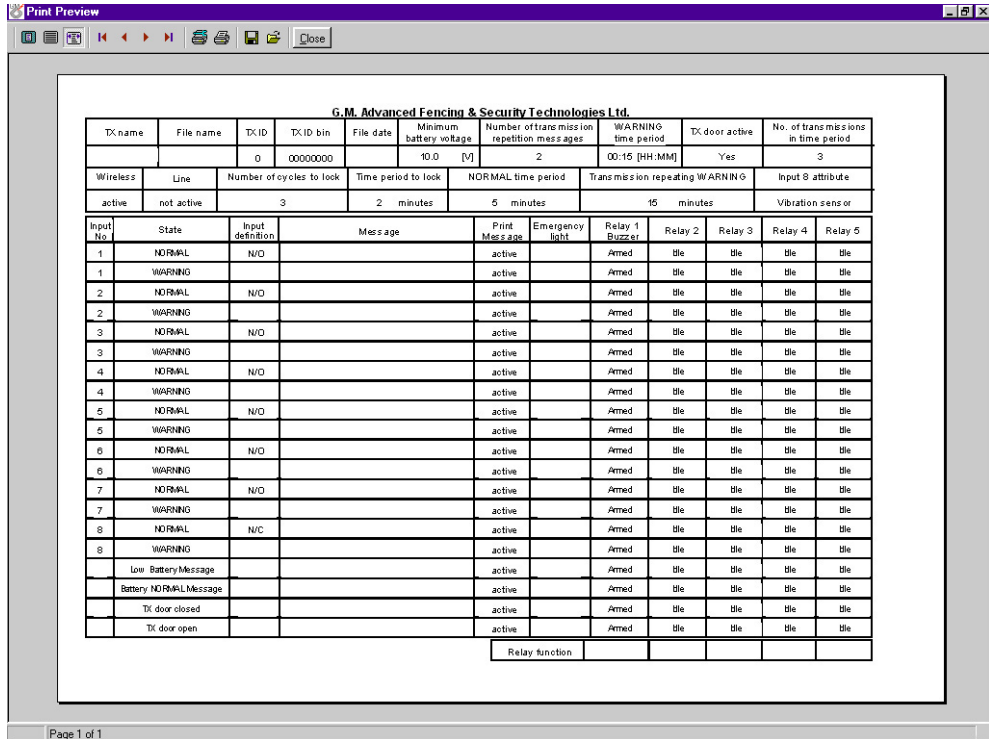
✓ At the end of the transmitter programming process, the progress window will disappear. A new window will appear:

**The transmitter (TX) programming has been successfully completed.**

- ✓ When the programming process has been completed and approved, disconnect the + 12V power feeding connector from the transmitter and return the J-13 jumper to the disconnected state (operational state).
- ✓ Reconnect the  $\pm 12V$  power feeding connector.

**The transmitter is now ready for operation.**

Press the PRINT PREVIEW button  and check whether the settings, messages and definitions appearing on the screen are correct. Print Preview can also be found on the File window menu.



In the event that you find an error, or any item requires modification:



Press CLOSE on the print preview screen and correct the errors, or complete the necessary modifications.



After approving the settings and definitions, press the print icon. Keep the printed output form close to the programmed transmitter for testing and maintenance purposes



Relay function – after printing out the table, note in handwriting the relay function.

# Installation and Operation of the Control Panel/Receiver

The control panel/receiver receives all of the alarms and events transmitted by the transmitters in the specific site.

**The control panel/receiver documents the alarms and events and keeps an advanced events log that includes the following:**

- Message Display on a LCD display.
- Emergency LEDs for selected events.
- Activation of relays for external operations.
- Management of open events and emergency events screens.
- Management of inactive zone screen.
- Query and preparation of reports for selected alarms.
- A special-purpose keyboard for the execution of all the required operations.

The control panel/receiver includes a socket for a smart key used to acknowledge alarms and execute operations. The smart key (when applied to the socket) operates on two levels of authorization.

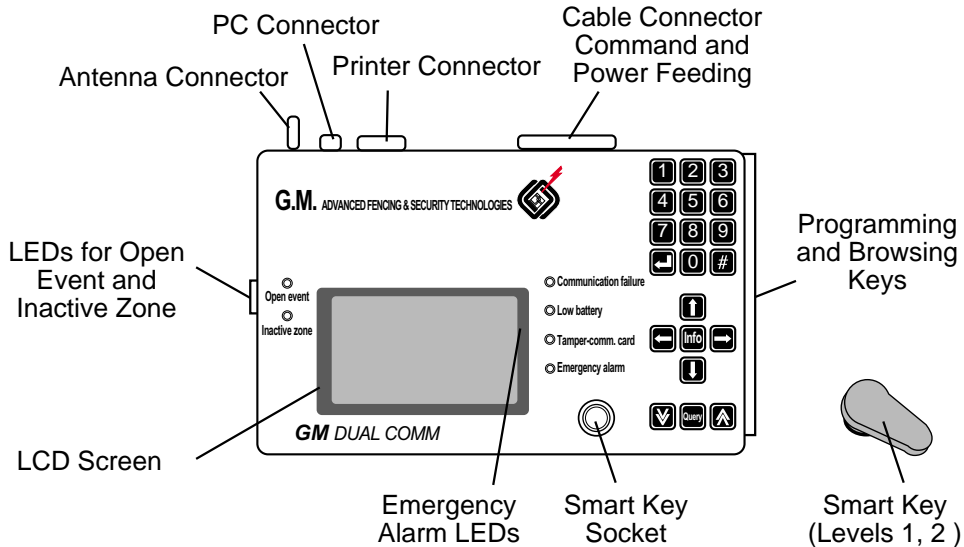
A printer can be connected to the control panel/receiver for the printout of alarms.

The control panel/receiver can also be connected to a PC, and can receive messages by means of wireless transmission, hard-wired transmission, or combined wireless and hard-wired transmission.

## **Installation:**

- ✓ Connect the command and feeding cable plug. Refer to the wiring diagram on Page 31.
- ✓ Connect the antenna.
- ✓ Connect the printer (optional)
- ✓ Connect 12 Volt operating power.

# Control Panel/Receiver



Transmitted messages will be, received by the Control Panel/Receiver and shown on the LCD screen. A buzzer will be activated and the various relays will be activated according to the settings programmed by the user.

## Smart Key - Guard level authorization (Level 1)

Enables the acknowledgement of one alarm only each time the smart key is held in the smart key socket. If more than one alarm is received, each has to be acknowledged separately by the operator

## Smart Key - Supervisor level authorization (Level 2)

Enables the acknowledgement of all the alarms at once by holding the smart key to the smart key socket.

☞ Acknowledgement of an alarm using the smart key held in the smart key socket causes the buzzer to stop alarming.

**It is impossible** to operate the system without the smart key.

## Authorisations

The different authorization levels enable different levels of operation of the control panel/receiver by the user.

## Level 2 – Supervisor

- Authorisation:** Allows access to all the system information, authorization to deactivate inputs and authorization to enter the system programming screens.

## Level 1 – Guard

- Authorisation:** All the screens and menus can be viewed and alarms are acknowledged with the operator smart key.

The different authorization levels are identified by means of the smart key. Each of the authorization levels has a different smart key. Each event that will appear on the receiver panel will be recorded in the events log and in the system memory. The system has the capability storing up to 256 messages. Any new message that is received beyond the 256 messages stored in the memory will delete the first message.

It is possible to connect a printer to the control panel and print all the events that have been classified in the message definitions as messages to be printed. In addition it is possible to obtain selected printouts from the event log.

## LED Indicators

### General LED indicators

  
**Open event**

- Open Event LED - lights when there is at least one open event.

  
**Inactive zone**

- Inactive Zone LED - lights when there is at least one zone that has been set as inactive.

### Very Important – Emergency Alarms LEDs

  
**Comm. failure**

- LED lights when there is one or more open communication alarm

  
**Low battery**

- LED lights when the voltage level falls below the programmed voltage level for low battery.

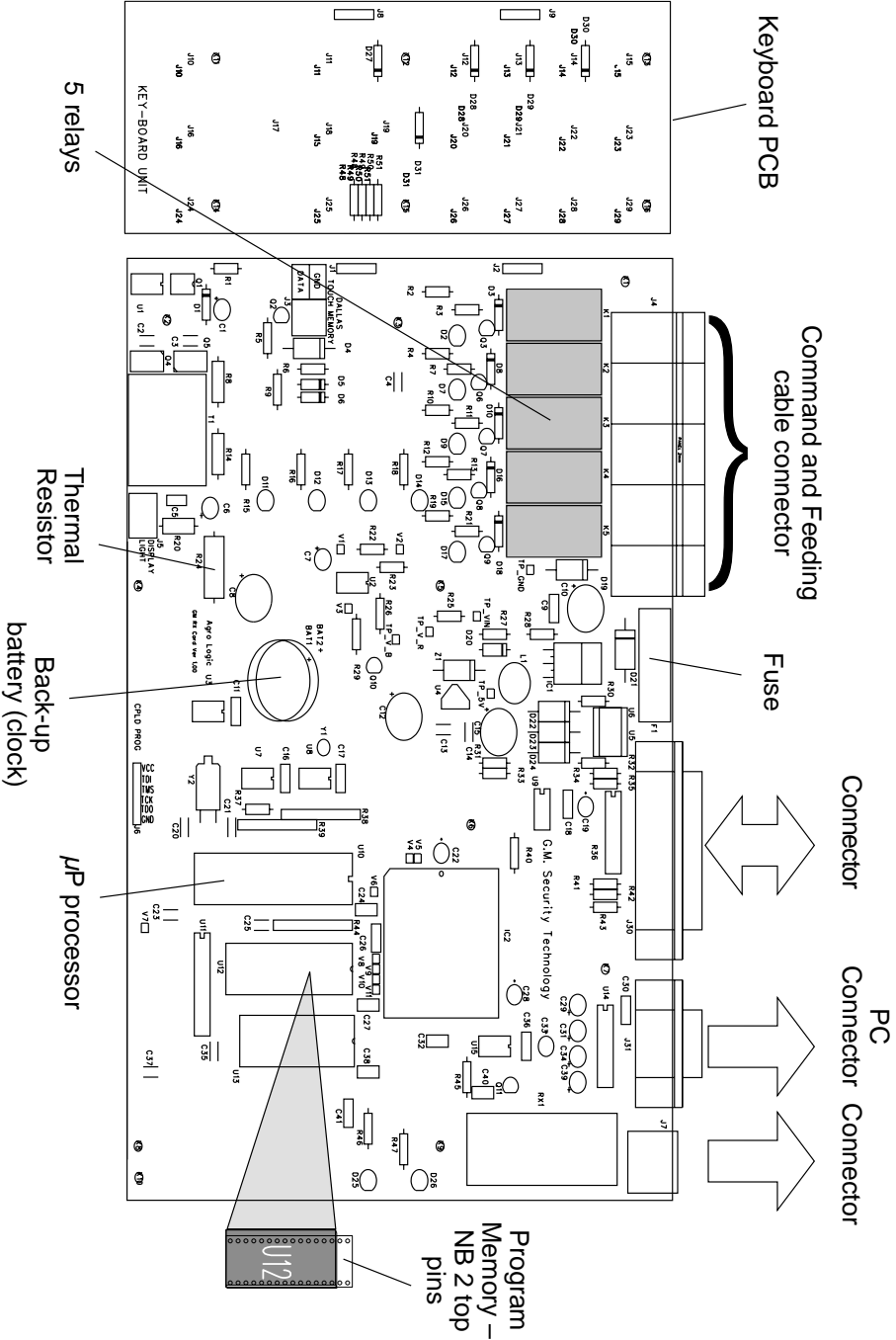
  
**Tamper-comm. card**

- LED lights when one or more of the Transmitter/ Cabinet Door is open.

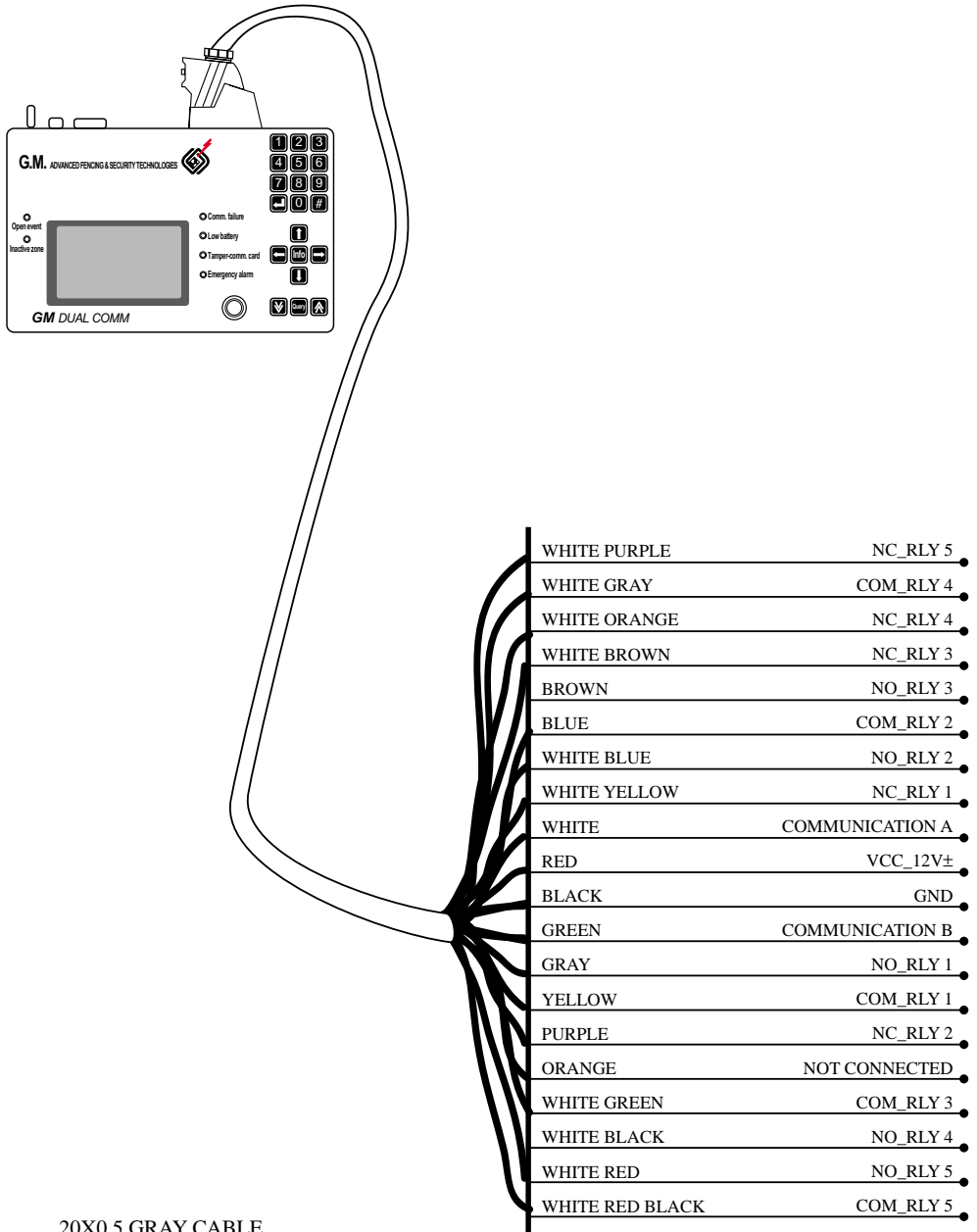
  
**Emergency alarm**

- LED lights when there is one or more open Emergency Alarms (one or more alarms).

# Control Panel/Receiver Card



# Connection of Command and Feeding cable



20X0.5 GRAY CABLE

# Operation

Dear Operator,

Please read the instruction and operation manual carefully. Do not undertake any operations that are not listed or explained in this manual.

The correct operation and use of the control panel/receiver is a prerequisite for the proper operation and reliability of the security system.

## General

- ✓ The buzzer will ring until the event is authorized with a smart key.
- ✓ The control panel/receiver operates continuously. It is not possible to disconnect the control panel.

The control panel/receiver will alarm for 2 types of failures that are monitored independently:

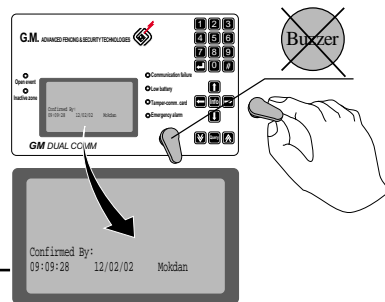
1. Communication Failure when the control panel/receiver fails to receive a "transmitter alive" signal from designated transmitters in that site in the programmed warning time period.
2. Low Battery signal in the Control Panel/Receiver.

The smart key is used to confirm the receipt of a message or alarm.

- ✓ Hold the smart key to the smart key socket.
- ✓ The buzzer will stop alarming/ringing.
- ✓ The screen will display the authorization level of the smart key user.

**Example:** See diagram with smart key "Guard"

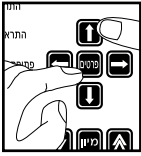
- ✓ Supervisor Smart Key – Authorises all messages.
- ✓ **Guard Smart Key – authorizes one message at a time.**



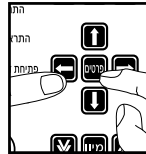
## LCD Screen - Light

The LCD screen lights up when messages are received. The screen light is extinguished after one minute if no new messages have been received, and if the keyboard, INFO or query function keys have not been used. Pressing any of the buttons on the keyboard will cause the LCD screen to light up again.

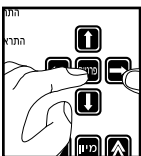
Please follow the following steps in the event that the screen remains blank:



- ✓ Simultaneously press the INFO key and the UP arrow key (for scrolling).
  - ❑ The screen shows the messages, but without any contrast.



- ✓ Simultaneously press the INFO key and the LEFT arrow key (for scrolling) to make the contrast darker.
  - ❑ Result: The contrast is good, but too dark.



- ✓ Simultaneously press the INFO key and the RIGHT arrow key (for scrolling) to make the contrast lighter.
  - ❑ Result: The correct contrast level has been achieved.

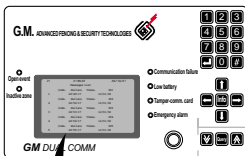
## LCD screen when operational

The date, time and total message counter will always be displayed on the first line of the screen.

The screen name will be displayed on the second line of the screen.

Screen content capacity: 5 messages, each message consisting of 2 lines.

The last line (bottom) of the screen will hold the last message (flashing) received that has not been confirmed by the operator.



**UP arrow key**  
pressing this key once will cause the cursor line to scroll one line up.



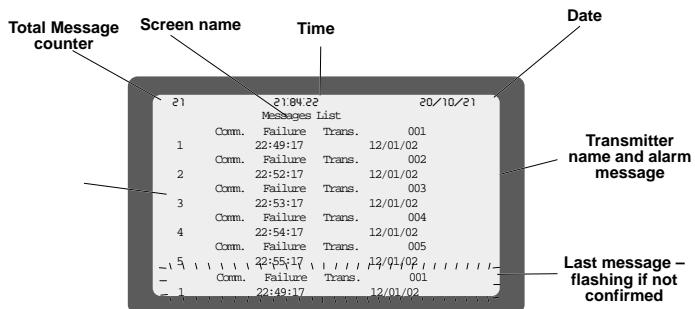
**DOWN arrow key**  
pressing this key once will cause the cursor line to scroll one line down.



**Double arrow UP key**  
pressing this key once moves the cursor liner to scroll 5 messages up.



**Double arrow DOWN key**  
pressing this key once moves the cursor liner to scroll 5 messages down.




# Programming the Control Panel/Receiver

## Setting the Date and Time



The supervisor (authorization level 2) can complete this operation.

The guard (authorization level 1) cannot enter the programming mode.


- ✓ Enter the programming mode.  
Hold the smart key, supervisor authorization level to the smart key socket. It is now possible to program the control panel/receiver in a 5 minute time period. After 5 minutes, the system will lock automatically and will not allow further programming operations.

- ✓ Press the  key


**8 options will appear on the MENU screen.**

- ✓ Press option number 8  using the arrow down key  to reach this option.


**8. System Parameters**

- ✓ ENTER by pressing the  key.

The screen will display all the programmable functions

- ✓ On the program screen, use the arrow down key  to scroll to the TIME line.  
Enter the time in hours and minutes using the number keys.

**Example:**

The time is 14:22. Enter the numbers from left to right. The numbers on the screen will be entered from right to left. Enter 1,4,2,2. Press ENTER .


### IMPORTANT

Entering 9999 in the TIME field will cancel all the deactivated zones. The set time will be unaffected.

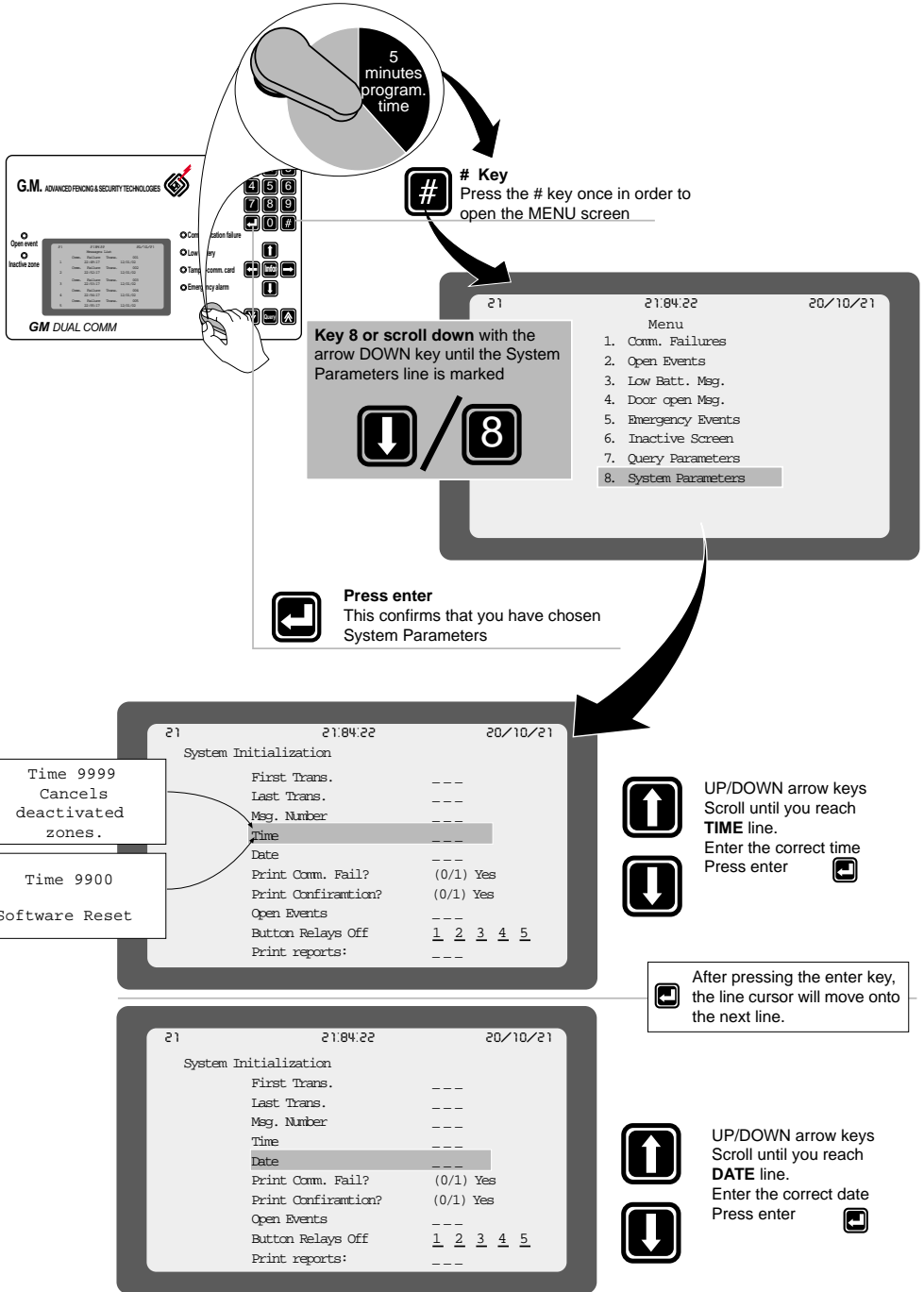
Entering 9900 in the TIME field will RESET the program. The set time will be unaffected.

- ✓ On the program screen, use the arrow down key to scroll to the DATE line.  
Enter the date using the number keys.

**Example:**

The date is 15/01/02. Enter the numbers from left to right. The numbers on the screen will be entered from right to left. Enter 1,5,0,1,0,2. Press ENTER .

# Setting of the Date and Time in the PROGRAM SCREEN

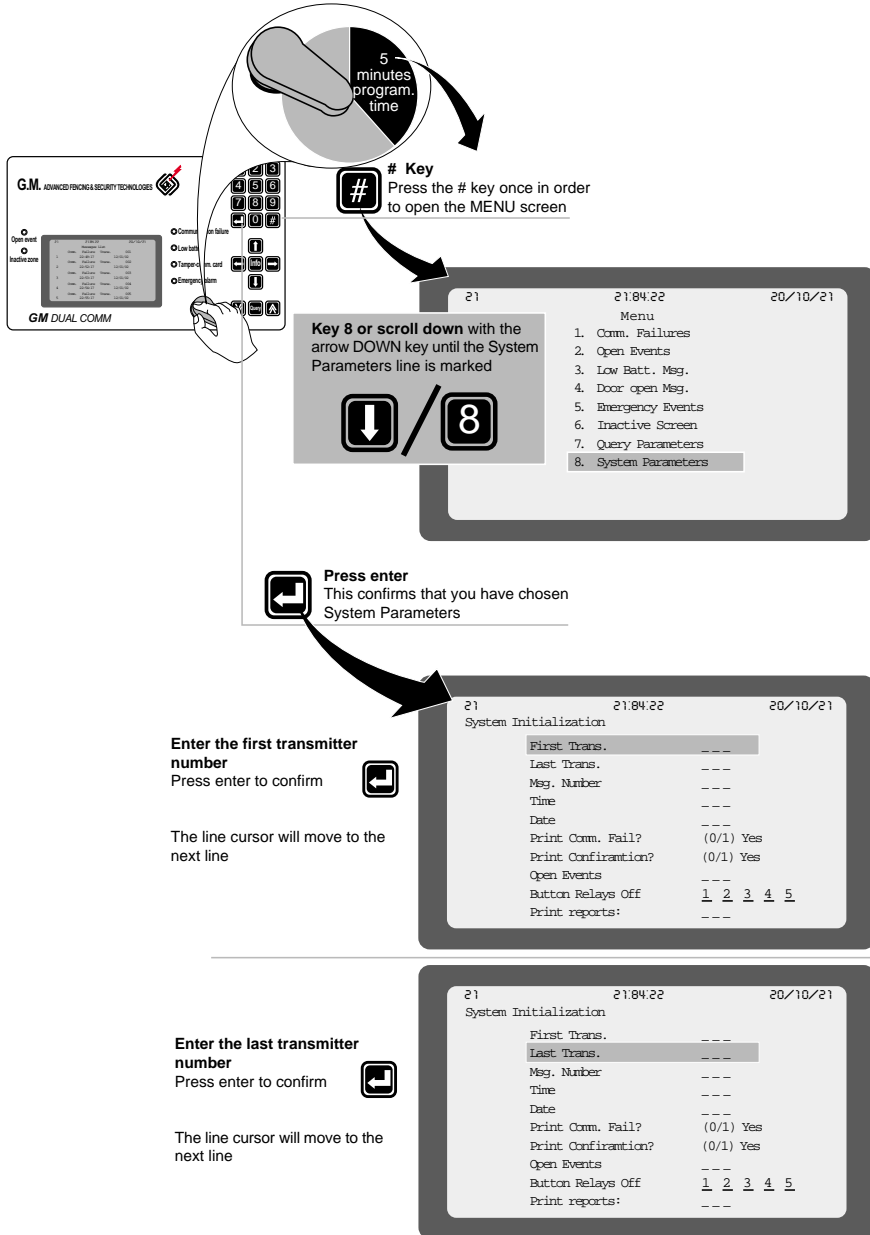


# System Parameters Screen

Previously we described how to set the TIME and DATE parameters. This is important when starting to use the control panel/receiver.

The guard authorization level 1 cannot enter the System Parameters Menu.

System Parameter screen details:



## System Parameters Screen (continued)

21 21:84:22 20/10/21

System Initialization

First Trans.	---
Last Trans.	---
Msg. Number	---
Time	---
Date	---
Print Comm. Fail?	(0/1) Yes
Print Confirmation?	(0/1) Yes
Open Events	---
Button Relays Off	<u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>
Print reports:	---

### Enter the Message number

Enter number 1 as the first message number

Press enter  to confirm

The line cursor will move to the next line

Please see pages 34-35 for an explanation of setting the TIME and DATE.

21 21:84:22 20/10/21

System Initialization

First Trans.	---
Last Trans.	---
Msg. Number	---
Time	---
Date	---
Print Comm. Fail?	(0/1) Yes
Print Confirmation?	(0/1) Yes
Open Events	---
Button Relays Off	<u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>
Print reports:	---

**Entering zero (0) in this field - Print Communication Failure will not be printed**

**Entering any other number that is greater than 0 - Print Communication Failure will be printed**

Press enter  to confirm

The line cursor will move to the next line

21 21:84:22 20/10/21

System Initialization

First Trans.	---
Last Trans.	---
Msg. Number	---
Time	---
Date	---
Print Comm. Fail?	(0/1) Yes
Print Confirmation?	(0/1) Yes
Open Events	---
Button Relays Off	<u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>
Print reports:	---

**Entering zero (0) in this field - Print confirmation will not be printed (smart key required to confirm alarm messages)**

**Entering any other number that is greater than 0 - Print confirmation will be printed**

Press enter  to confirm

The line cursor will move to the next line

21 21:84:22 20/10/21

System Initialization

First Trans.	---
Last Trans.	---
Msg. Number	---
Time	---
Date	---
Print Comm. Fail?	(0/1) Yes
Print Confirmation?	(0/1) Yes
Open Events	---
Button Relays Off	<u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u>
Print reports:	---

**The number in the OPEN EVENTS field defines the number of open events in the system.**

**DO NOT SET ANY NUMBER OTHER THAN THE NUMBER EXISTING IN THE OPEN EVENTS FIELD**

**Entering 0 in this field will cancel all the open events**

Press enter  to confirm

The line cursor will move to the next line

## System Parameters Screen (continued)

```
System Initialization
  First Trans.      ---
  Last Trans.      ---
  Msg. Number      ---
  Time             ---
  Date             ---
  Print Comm. Fail? (0/1) Yes
  Print Confirmation? (0/1) Yes
  Open Events      ---
  Button Relays Off 1 2 3 4 5
  Print reports:   ---
```

BUTTON RELAY OFF field sets the identity of the 5 relays using the smart key.

All the relays entered in this field will be identified by the smart key. The smart key will change the state of these relays to OFF.

### Example

4 is entered in the BUTTON RELAY OFF field

An alarm message is received by the control panel/receiver. The smart key must be held to the smart key socket in order to confirm receipt of the message.


The buzzer WILL NOT stop ringing because it belongs to relay number 1. Relay number 1 is therefore not defined.

Take note to enter the active relays in this field.

Press enter  to confirm.

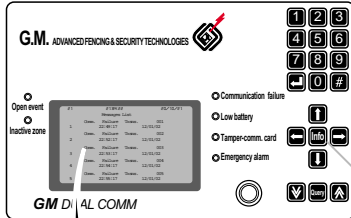
If the relay is defined, it will not be possible to change the state to OFF.


---


Press the  key to EXIT the program parameter menu.

# INFO Screen

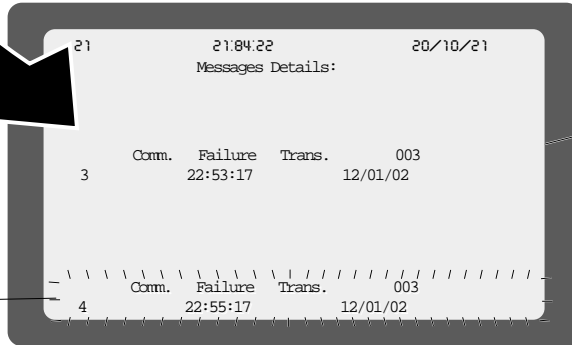
The details of a specific message are shown on a separate screen. To EXIT the INFO screen, press the INFO key again.



 **UP/DOWN arrow**  
Scroll up or down to chose a specific message

 **INFO key**  
Pressing the INFO key once will open a new screen with the details of the message.

**New message (flashing) that has been received by the control panel/receiver**

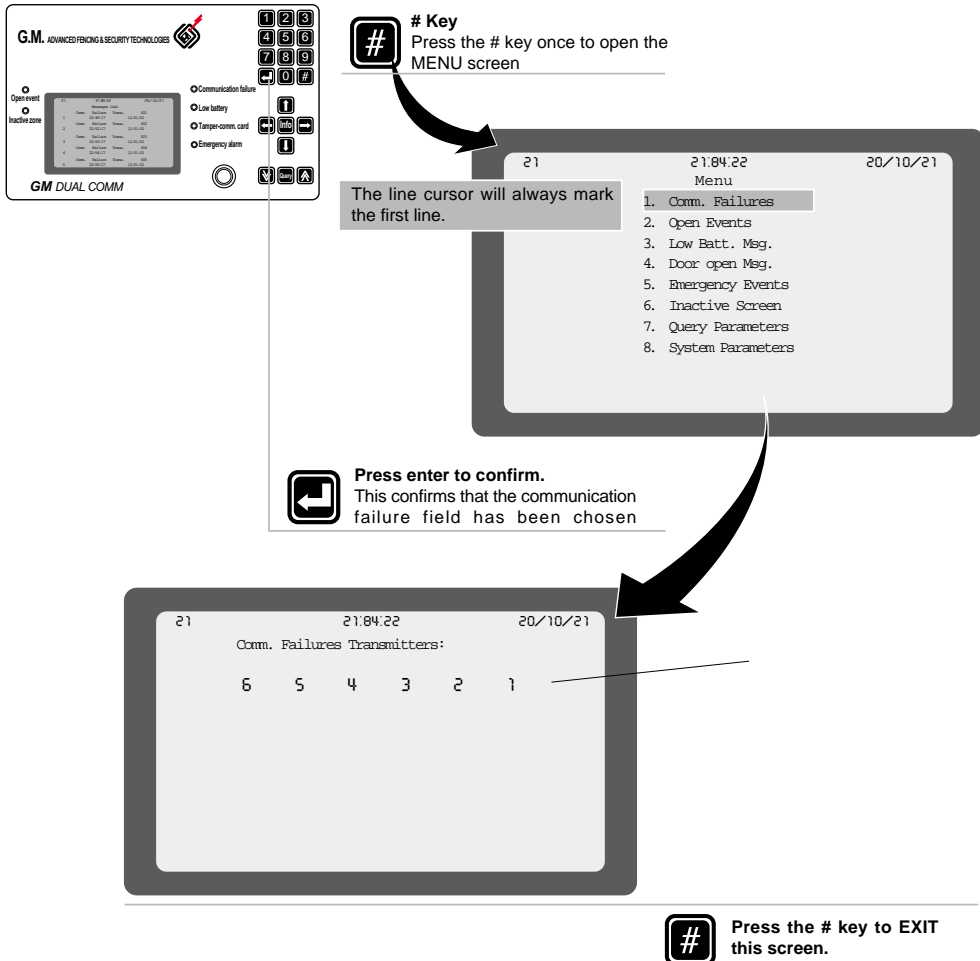


**Message Detail Screen**

# Communication Failure Screen

If there are any open communication failure events (the Communication Failure LED will light up), it is possible to see all the communication failure events on a separate screen.

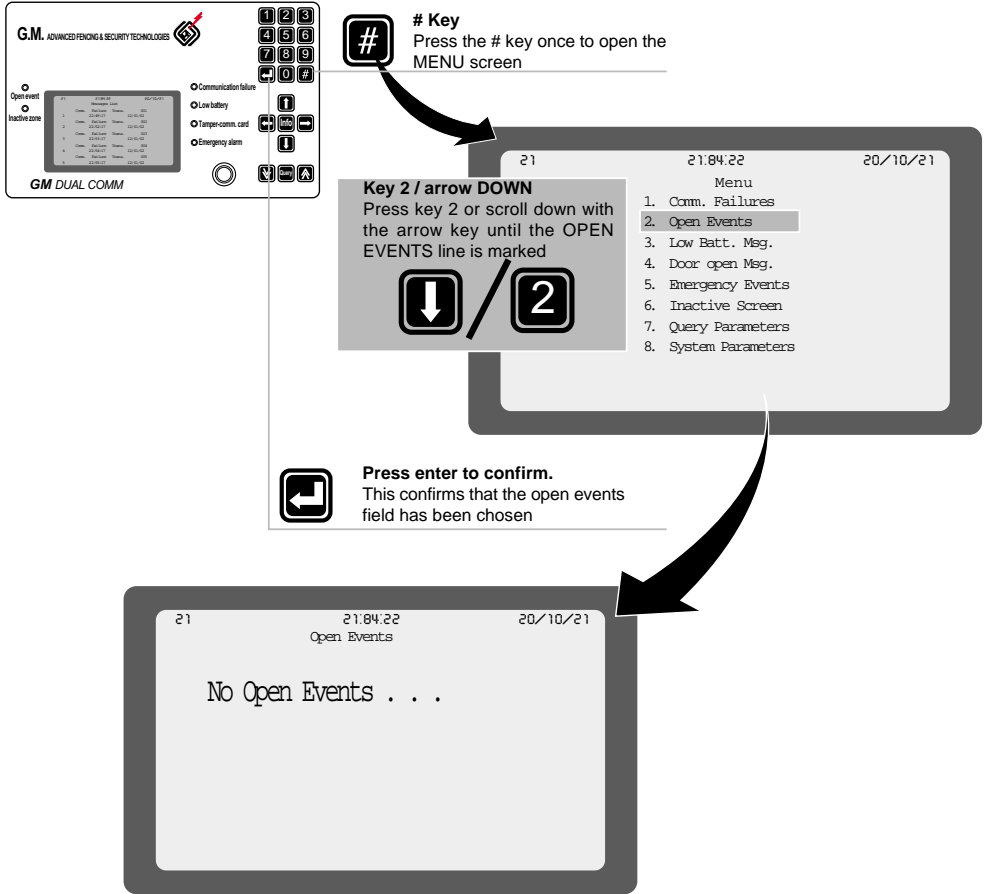
The first line will contain the first 6 transmitters that are not transmitting. If there are more than 6 transmitters that are not transmitting, they will appear on the same screen under the first line.



# Open Events Screen

If there are any open events (the OPEN EVENT LED will light up), it is possible to see all the open events on a separate screen.

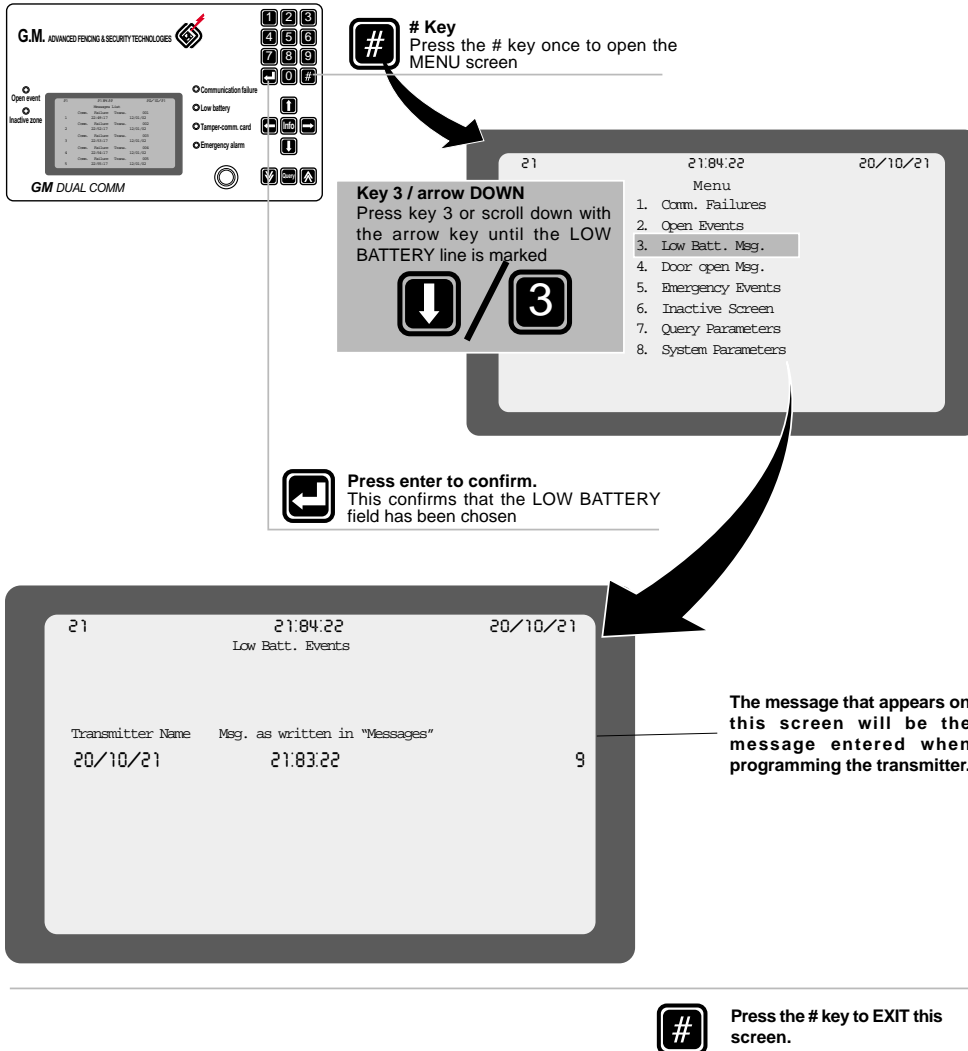
If there are no open events then the screen will show "NO OPEN EVENTS".



**#** Press the # key to EXIT this screen.

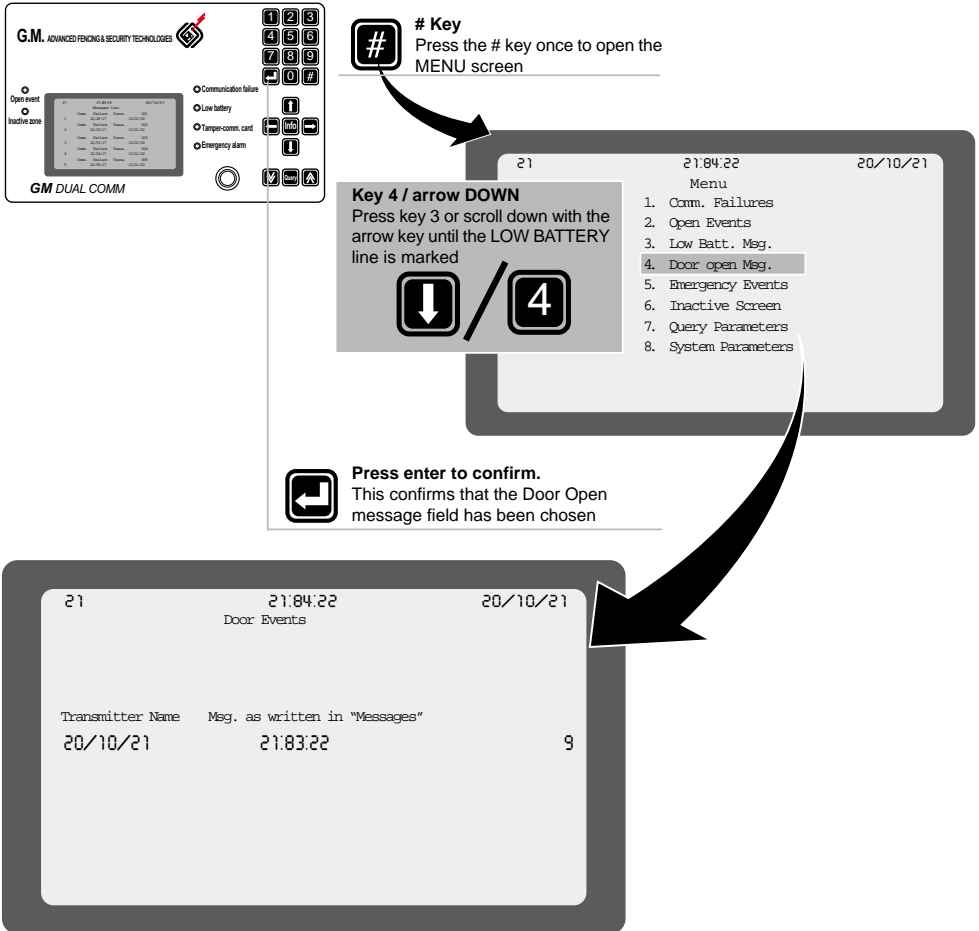
# Low Battery Message Screen

If the LOW BATTERY LED lights up, it is possible to see on a separate screen which transmitters have low batteries.



# Door Open Message Screen

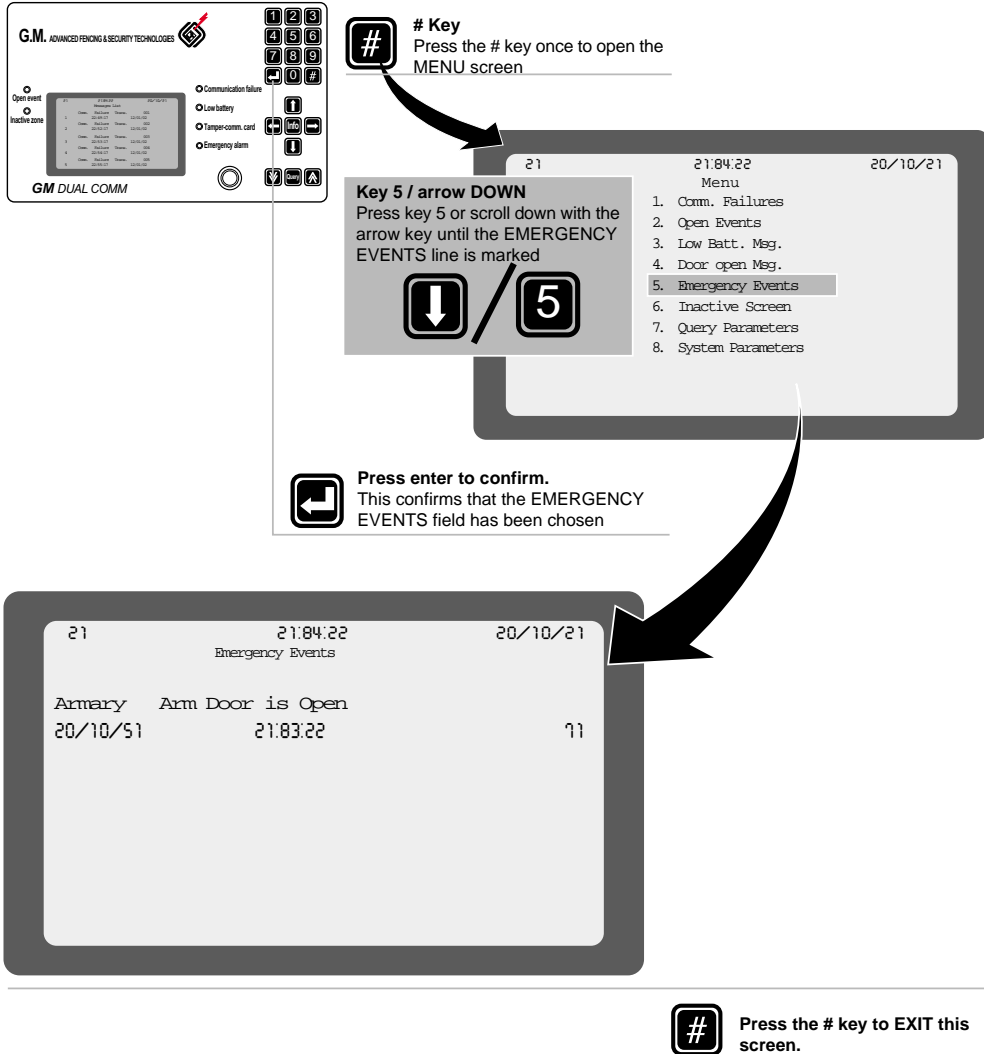
If there is an alarm caused by an open transmitter cabinet door, (Tamper Com. Card LED lights up), it is possible to see on a separate screen which transmitters have a open doors.



# Emergency Events Screen

If there are open alarms that have been defined as emergency alarms, it is possible to see all the open emergency alarms on a separate screen.

**Example:** Transmitter name – Armary . Alarm Message – Arm Door is Open.



# Inactive Zone Screen

This screen enables the deactivation of certain inputs from the transmitters, or the deactivation of an entire transmitter in specified time periods.

**Example:** Input 3 from transmitter number 2 is a gate that is continuously open every day between 08h00 and 08h30. It is possible to deactivate this input for the specified 30 minute time period. No alarms from this gate will be received by the control panel/receiver.

**Comment:** If 99 is entered in the input column of the inactive zone screen, then the entire transmitter defined under column "Tx" will be deactivated.

- ✓ In order to cancel a specified line of the inactive zone screen, enter 0 in all the columns.
- ✓ In order to cancel ALL the inactive zones, enter 9999 in the TIME field of the SYSTEM PARAMETERS screen.

**# Key**  
Press the # key once to open the MENU screen

**Key 6 / arrow DOWN**  
Press key 6 or scroll down with the arrow key until the INACTIVE SCREEN line is marked

**Press enter to confirm.**  
This confirms that the INACTIVE SCREEN field has been chosen

Tx	Input	From	To
2	3	08:00	08:30
0	0	00:00	00:00
0	0	00:00	00:00
0	0	00:00	00:00
0	0	00:00	00:00
0	0	00:00	00:00
0	0	00:00	00:00
0	0	00:00	00:00
0	0	00:00	00:00
0	0	00:00	00:00
0	0	00:00	00:00
0	0	00:00	00:00
0	0	00:00	00:00
0	0	00:00	00:00
0	0	00:00	00:00

**UP/DOWN arrow key** enables scrolling the rows of this screen.  
The cursor will appear on the first line in the first column of this screen

**Enter the transmitter number and press enter**

**Enter the input number and press enter**

**Enter the starting time "FROM" and press enter**

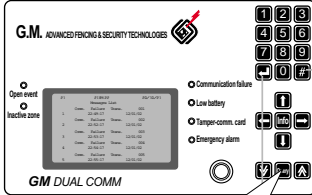
**Enter the end time "TO" and press enter**

The **LEFT/RIGHT arrow** keys enables scrolling to the left and right in a specified row.

# Query Parameters Screen

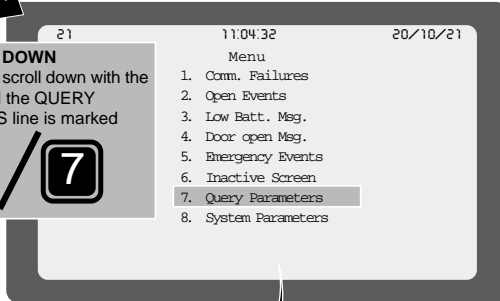
Enables the selection of alarm messages according to specified parameters.  
 The query parameters screen will not operate if specified parameters have not been defined.

QUERY key – Before pressing the Query key, chose Query Parameters.



**# Key**  
 Press the # key once to open the MENU screen

**Key 7 / arrow DOWN**  
 Press key 7 or scroll down with the arrow key until the QUERY PARAMETERS line is marked



**QUERY key –**  
 Before pressing the Query key, chose Query Parameters.



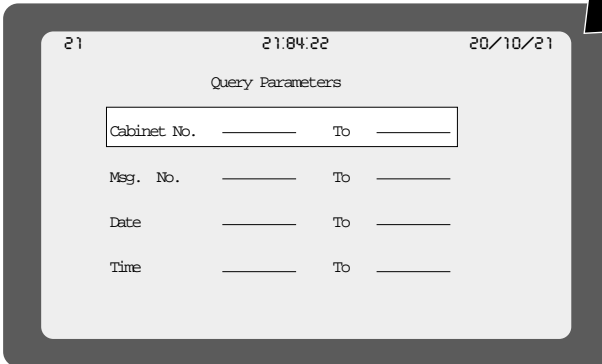
**Press enter to confirm.**  
 This confirms that the QUERY PARAMETERS field has been chosen



**Up/down Arrow Keys**  
 Enables scrolling between lines.



The line cursor will be found on the first line of the QUERY PARAMETERS screen



Enter the cabinet number "FROM" and press enter

Enter the cabinet number "TO" and press enter

Press the down arrow key. The line cursor will move to the second line.

Enter message number (Msg. No.) "FROM" and press enter

Enter message number (Msg. No.) "TO" and press enter

Press the down arrow key. The line cursor will move to the third line.

Enter the date "FROM" and press enter

Enter the date "TO" and press enter

Press the down arrow key. The line cursor will move to the fourth line.

Enter the time "FROM" and press enter

Enter the time "TO" and press enter

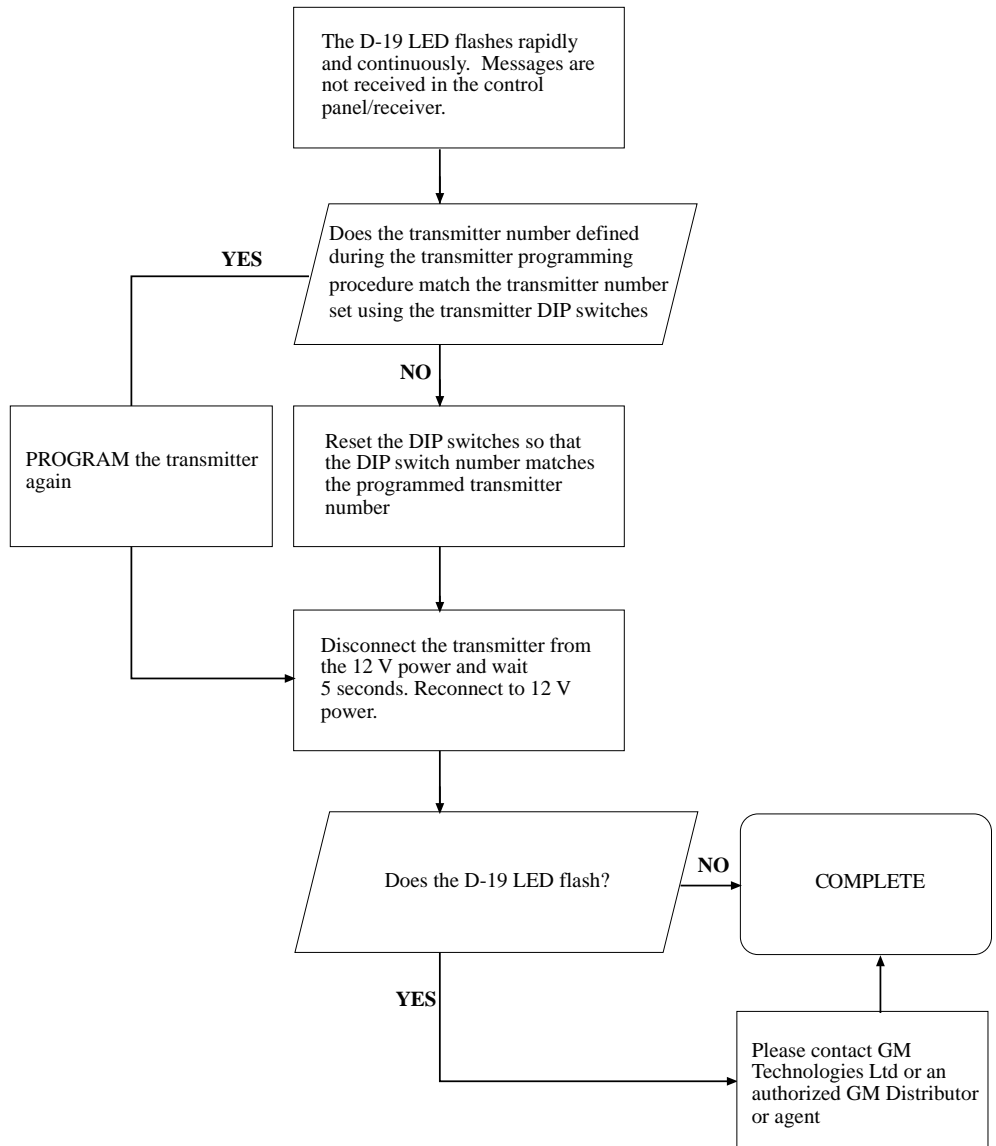


The LEFT/RIGHT arrow keys enables scrolling to the left and right in a specified row.

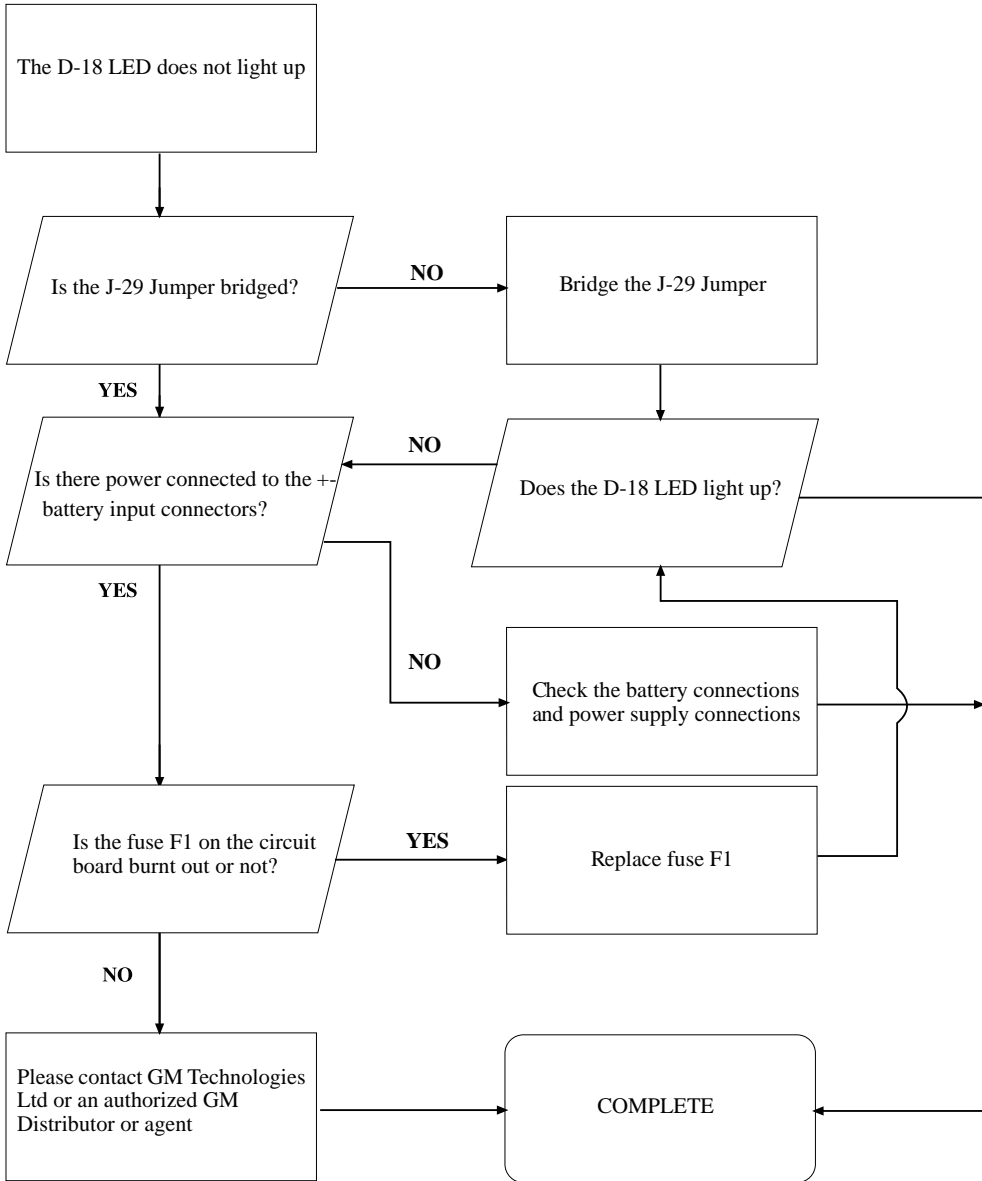
# Troubleshooting Guide

The flow charts below provide troubleshooting guides for the DUAL COMM transmitter and DUAL COMM control panel/receiver.

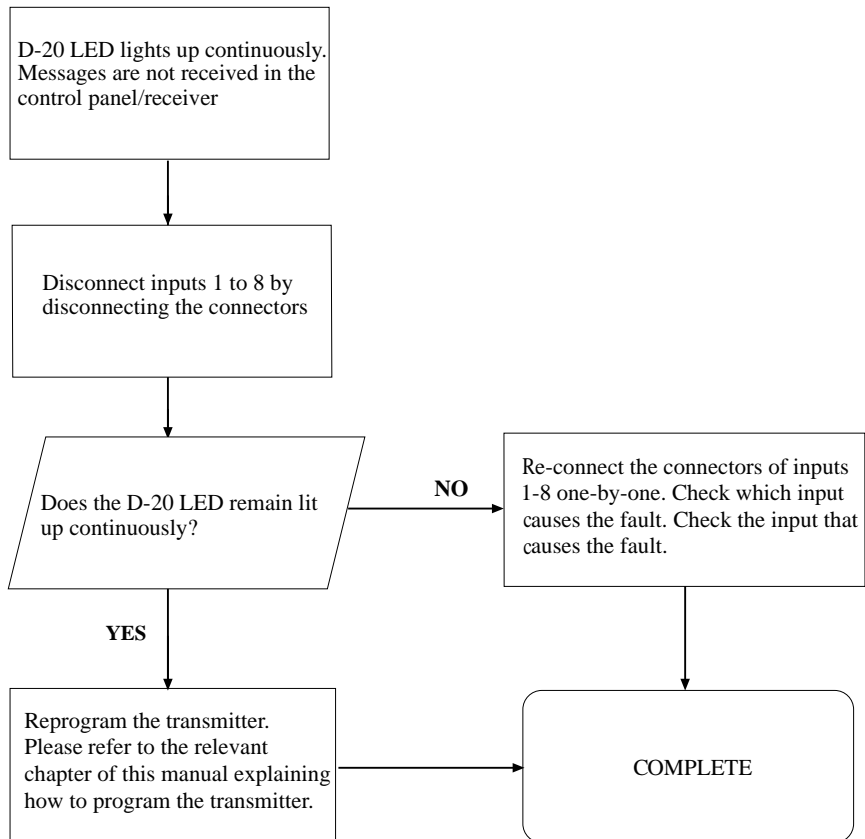
## 1. Dual comm transmitter troubleshooting guide



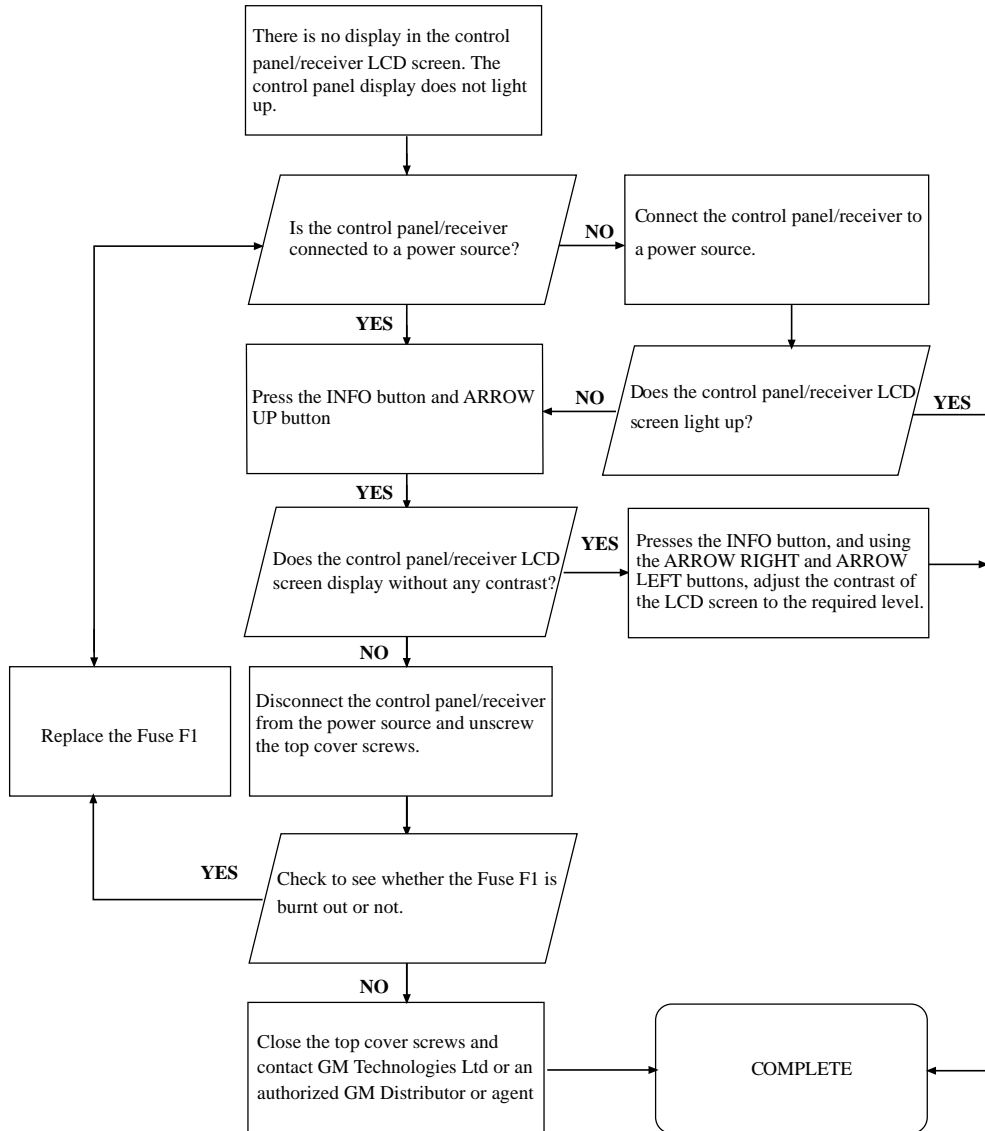
## 2. Dual comm transmitter troubleshooting guide (continued)



### 3. Dual comm transmitter troubleshooting guide (continued)



# 4. Dual comm transmitter troubleshooting guide (continued)





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**G.M.** ADVANCED FENCING & SECURITY TECHNOLOGIES



Open event

Inactive zone

Comm

Low

Tamp

Emer

**GM DUAL COMM**

Design & Production



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