RFR-2100 Gas Maestro™ Wireless Receiver	OPERATION MANUAL
RFT-2000 Gas Maestro™ Wireless Transmitter	

1. Introduction

Maestro™ RFR-2100 RF wireless receiver is designed to operate with the Maestro™ wireless transmitter(s) RFT-2000. RFR-2100 receiver can receive signals from up to 24 of the RFT-2000 transmitters. The Maestro™ and the RF wireless system are also very reliable and are approved to high CSA standard.

Gas Maestro™ wireless system can be easily added to other wired Maestro™ systems. It may also be used to expand the amount of inputs from 5 to 24 with clear zone display. With this system, there is no need to string wires across the room or though a building when you install the Maestro™ home protection system.

Main features built into the Maestro™ RF system are:

1) Unique transmitter ID:

   Each Maestro™ RFT-2000 transmitter has a built in guarantee unique 8 bytes ID number. Wherever you install the Maestro™ RF system, there is no need to worry about your neighbors installing a similar transmitter with the same ID.

2) Advanced zoning feature:

   The receiver can automatically store the transmitter ID numbers and keep tracking them. No coding and channel selections are necessary.

3) Clear zone display:

   The combinations of 8 zones LED and 3 pages LED clearly displays 24 zones. With this display, you can easily locate any problem.

4) Automatic Regular Checking

   Maestro™ RF system also constantly checks the signal reception from all of the transmitters to determine if there are sources of interference and to protect against fault. No manual regular checking is necessary.

5) Low battery warning

   RFT-2000 transmitter has low battery warning feature.

6) Remote emergency shut off

Maestro™ RF system has also reserved a special feature for fire department. The fire fighter can use their special devices made by Gasguard to instantly shut off the gas valve in case of fire.

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2. More about the Maestro™ RF system

2.1 RFR-2100 receiver

At the front plate of the RFR-2100 receiver, there are:
- 1 master LED
- 8 zone LED, marked 1,2,3,4,5,6,7,8
- 3 page LED, marked I, II, III
- 1 reset button
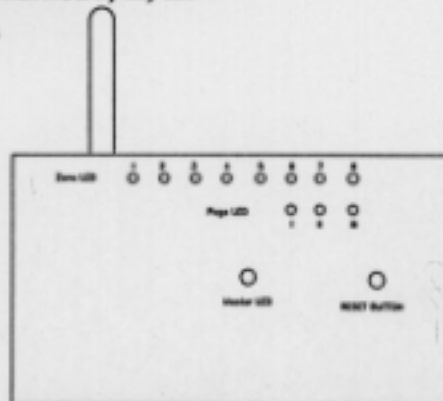
The master LED indicates which function (mode) the unit is performing. RFR-2100 receiver has the following 5 modes:

1. Normal operation mode:

   Both receiver and transmitter(s) are functioning normally

2. Alarm mode:

   Receiver received the alarm signal from the transmitter and wait for the reset signal.

3. Trouble mode:

   Transmitter(s) has low battery or poor signal reception.

4. Learn mode:

   Receiver is waiting for a new transmitter to transmit a signal

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5. Underline Erase mode:

   Receiver is about to erase the memory. Release the button to cancel.

The combinations of the 8 zones LED and 3 pages LED represent a total of 24 zones. For example:

- the first zone is (I-1), which means zone 1 at page 1.
- the 10th zone is (II-2), which means zone 2 at page 2.

Press the reset button to switch between pages.

Each activated zone turns on one(1) zone LED.

Table 1:Summery of the receiver's LED information

| LED	Status	Indication
Master LED	Steady green	Normal operation
	Steady red	Alarm mode
	Flash green, red alternately	Learn mode
	Flash red	Erase mode
	Steady amble	Trouble mode
Zone LED	Steady	Corresponded zone is normal
	Flashing	Corresponded zone is in alarm or in trouble
	Dead	Zone not activated
Page LED	Steady	Indicate page the unit is displaying now

Specifications:
Encoding: Pulse width modulation
Frequency: 418MHz
Power input: 12VDC±15%
Supplied from wall adapter or Main Control Unit
Current consumption (12VDC): 35mA
Temperature: 0~49 (32F~120F)
Humidity: 20%-90%
Cable length: 50 meters (150ft) max

2.2 RFT-2000 Transmitter

On the front cover of the RFT-2000 transmitter, there is:
- 1 LED
- 1 reset button
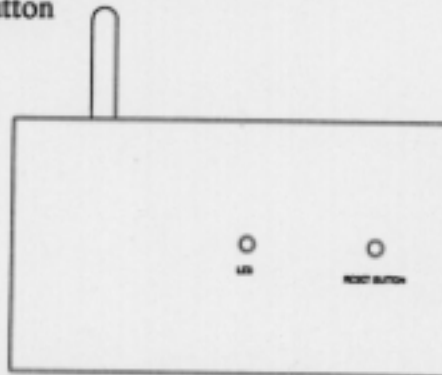
See table 2 for detail information about the LED

Table 2: Summary of RFT-200 transmitter LED indication

LED	Flashes green	Normal operation
	Red	Alarm mode or test mode
	Amble	Low battery

The reset button can be used:
- To send a test signal:
  Press and release the button, the unit transmits a test signal. When received the test signal, the LED stays red.
- To send a reset signal:
  After receiving a test signal, press and release again, the transmitter transmits a reset signal. The LED will go back to flashing green.

These features are very useful when you install the Maestro™ RF system or to do a manual checking.

Specifications:

Encoding: Pulse width modulation	Frequency: 418MHz
Power input: 12VDC±15%	Supplied from 12VDC wall adapter,
Maestro™ sensor	9V battery backup
Current consumption: Stand by: 4mA Transmit: 14mA	
Temperature: 0~49 (32F~120F)	Humidity: 20%-90%
Transmission length: 2 seconds	

3. How to install the Maestro™ RF system?

3.1 Where to install the RFR-2100 receiver and RFT-2000 transmitter?

The following should be considered:

- Place the receiver as close as possible to the transmitter.
- Antenna must be straight upward.
- Do not cover the unit as this may affect the signal.
- Do not place the unit under or behind metal objects.
- Away from the electrical appliances such as TV, personal computer, microwave.

3.2 Wiring the RFR-2100 receiver

RFR-2100 is designed to work with Gas Maestro™ GSS-1201 Main Control Unit or Water Maestro™ Wss1201 Main Control Unit. It can be connected to one of the input by a standard 4-wire telephone cable as used for all Maestro™ systems.

The RFR-2100 may be powered by any Maestro™ Main Control Unit by a simply connection through the cable. It can also be powered up by a 12V DC adapter through its own power jack.

Once the unit is powered up, the Master LED will turn green. The unit is now in a <u>normal operating mode.</u>

The cable length between the receiver and the Main Control Unit is 50 meter (150 ft)without receiver's own wall adapter. (This gives great flexibility when you place the receiver.)

3.3 Wiring a RFT-2000 transmitter

RFT-2000 transmitter is designed to work with all Maestro™ sensors, such as: Gas Maestro™ CO sensor, gas detector, tilt sensor, Water Maestro™ water sensor. A four wires telephone cable is needed to connect the transmitter with sensor.

RFT-2000 transmitter has three power options:
1) Powered by a 12V DC adapter.
2) Powered by the sensors (if connect to a CO detector).
3) Powered by a 9V battery inside the unit.

Once the unit is powered up, you will see a flashing green LED. The unit is in normal operation mode.

The cable length between the transmitter and sensor is depended on case by case. The following diagram is suggest wiring diagram, it also give you a rough idea the maximum cable length:

3.4 Learning a new transmitter

In order for a RFT-2000 transmitter to communicates with a RFR-2100 receiver, the receiver must first store the transmitter ID into its memory. The RFR-2100 can store up to 24 transmitters' IDs. When you purchase the unit, the unit's memory is blank. When a unit with blank memory is powered up, there is no zone LED on. Only the Master LED is turn on.

Four (4) steps on how to learn a new transmitter:

Step 1:

By pressing the reset button of the RFR-2100 receiver while powering up, the receiver will go into _LEARN MODE_. The Master LED will flash red and green alternatively when the unit in the LEARN _MODE_. The unit will stay in _LEARN MODE_ until it receive a new transmitter ID

Step 2:

Power up the transmitter you want to learn. Send a test signal from that transmitter.

Step 3:

The receiver receives a test signal and stores the ID number in its memory. A zone LED is lit up showing this zone is now activated. The receiver master LED then turns red.

Step 4:

To confirm the communication has been established, you can:
- Send a test signal from the transmitter; see if the receiver goes into alarm mode.
- Send a reset signal from the transmitter; see if the receiver reverts back to the normal mode.

Repeat these steps for a couple times. It helps you to determine whether a good signal reception has been established.

This procedure is also used to perform a manual checking.

Step 5:

After you have made sure communication is satisfactory, stick a label shipped with the system onto that transmitter. The label has page number (I, II, III) and zone number (1~8) on it. For example, when you install the first transmitter, stick a label marked I-1 onto the transmitter.

The unit can only learn one transmitter at a time. If you want to learn more transmitters, repeat from step 1 to step 4.

4. Things you should know

4.1 How to erase the memory

If for any reason you want to erase the memory, you simply press and hold the button on the RFR-2100 receiver for 10 seconds. The master LED will start flash red then faster and faster. That means the unit is in Erase Mode. If you keep pressing the button for another 10 seconds, the master LED turns green and the memory is erased.

At any time the button is released, this procedure is cancelled.

4.2 After the receive activates an alarm mode

1) Confirm the alarm condition:

   Check the receiver's master LED is red, one or more zone LED is also flashing. The connecting Main Control Unit is in alarm mode also.

2) Locate the problem

   The zone with the zone flashing is the zone causing the alarm. Switch the pages; there may be more than one zone in alarm mode.

3) Check the transmitter:

   If an alarm condition is still presented, both transmitter and the connecting sensor(s) should stay in alarm mode.

   After the alarm condition is clear, press the reset button. Transmitter sends a reset signal and goes back to normal operation mode.

4) Reset the receiver:

After all the transmitters in alarm condition have been reset, you can press the receiver-reset button to reset the receiver back to normal operation mode.

You cannot reset the receiver if any transmitter is still in alarm mode.

4.3 After a receiver goes into trouble mode:

1) Locate the problem:

Once the receiver goes into the trouble mode, check the zone LED to find out which zone is in trouble mode.

2) Check the transmitter in trouble mode

• Check if the transmitter is powered on.

• Check if the transmitter LED is amble. That means the transmitter has a low battery. Change the battery and press the reset to send a reset signal. The receiver will clear the trouble after it receives this signal.

• Check if the transmitter is covered or blocked by something.

• If the transmitter appears normal (LED flashes green), it is likely the receiver has a poor signal reception from this sensor. You can confirm this by doing several manual checking. It could be because the transmitter is to far away from the receiver, or there are interference sources surrounding the unit. Move the transmitter closer to receiver.

4.4 How to remove a transmitter from the system?

If you want to avoid the receiver goes into trouble mode because of the particular transmitter. You can unpower the receiver and power it up after you power up that particular transmitter. The receiver is not tracking that transmitter but it will accept the alarm signal and test signal from that transmitter.

4.5 Changing the battery

You need to open the transmitter black plate in order to change the battery. Change with a 9V alkaline battery.