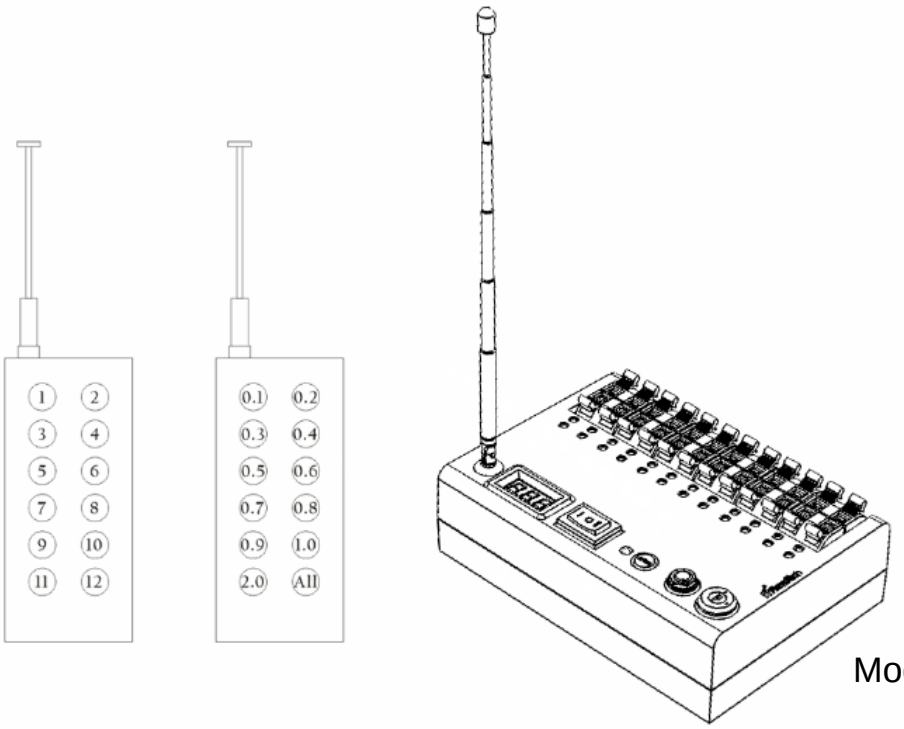



Model:RF12A

# MS12Q Wireless Firing System

## For Pyrotechnics and Fireworks Show

RFRemotech Radio Frequency Remote Technology

Remote Control Products, Remote Controllable Service

**Warnings:**

The purpose of this device is to cause the ignition of fireworks. Fireworks are explosives and may cause personal injuries or death to yourself or others, including spectators. You are responsible for the safe and legal use of this device according to the laws and regulations of your country and/or state/province/district. RFRemotech is not responsible for illegal or unsafe use of this device. The buyer/user assumes all responsibility and liability in the use of this device and further agrees, by purchase and/or use of this device, to indemnify and hold harmless RFRemotech against all liability for injury, loss, or damage direct or consequential arising out of the use of, or inability to use this device.

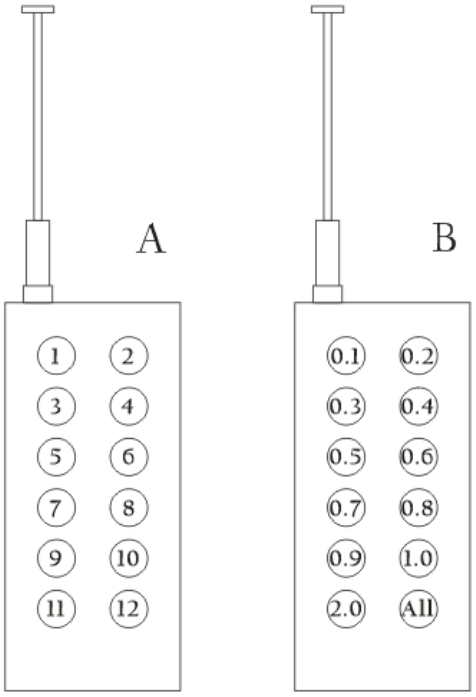
You must perform the safety tests (Page 4) **every time** you use the system.

**Contents**



## A. Description:

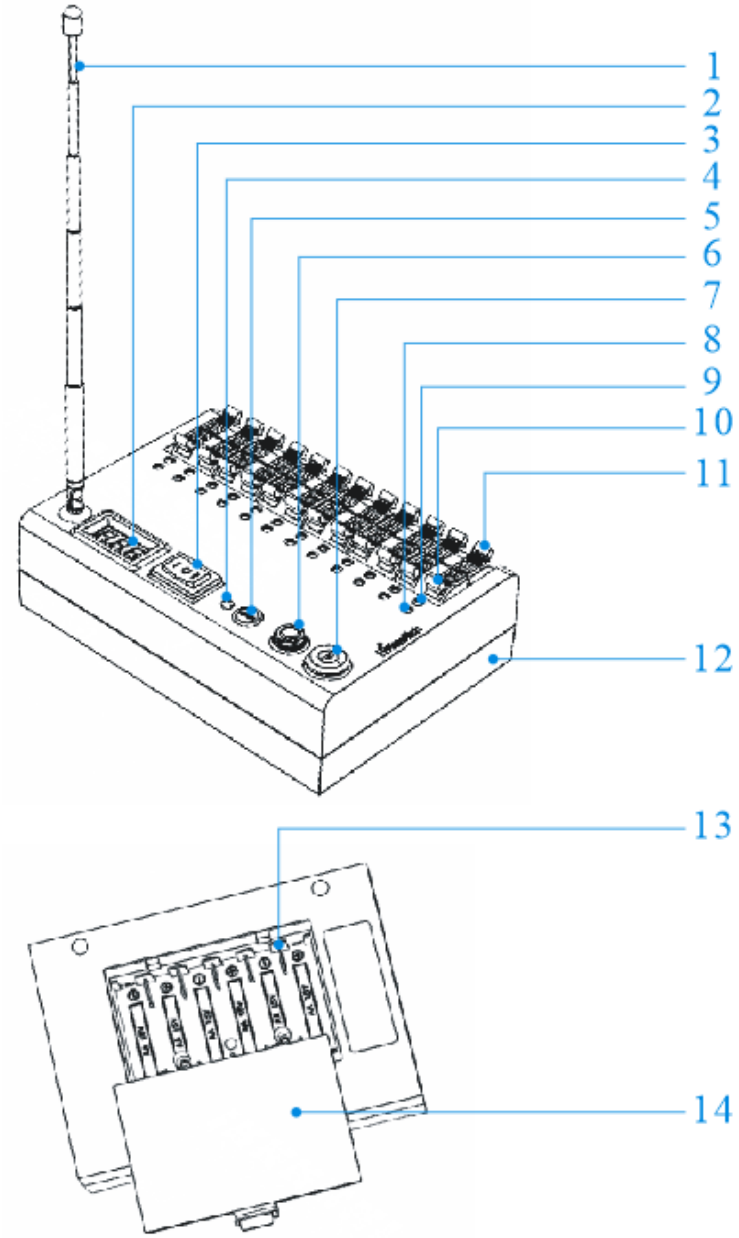
- ✧ Firing Module FCC & CE certified.
- ✧ OOK (ASK) Wireless Radio, 433.92MHz.
- ✧ 12 cues.
- ✧ Overload Protection.
- ✧ Reverse Protection.
- ✧ Learning Code, with more than one million address code combinations.
- ✧ Two Firing Modes: Instant Firing and Firing In-Sequence.
- ✧ Output Component: MOSFet
- ✧ Dual powered: Either 6x AA internal batteries or external power 6V to 20V DC. The Maximum firing current is 10A.
- ✧ Range 100-2000m.
- ✧ Working temperature: From -10℃ to +50℃




### 1) Transmitters:

Transmitter A: Dividual Firing Transmitter. Buttons have 1, 2... 12. Each button fires its corresponding cue of the firing module.

Transmitter B: Interval Firing Transmitter, Buttons have 0.1, 0.2 ... 0.9, 1.0, 2.0, ALL. Fires 12 cues of the firing module at 0.1s, 0.2s, 0.3s, ... etc. separately.




- ✧ Type: OOK, 433.92MHz.
- ✧ Transmitting Range: 100-2000m.
- ✧ Safety ON/OFF switch prevents misfires.

**2) Firing Module**

- ✧ Model No.: RF12A
- ✧ Cue: 12 cues
- ✧ **Power:** (Either internal or external)

Internal batteries: 6xAA battery, rechargeable or disposable;
External Power: 6-20VDC, SLA is recommended.

- ✧ Firing current: >750mA, Max. 10A
- ✧ Test current: <40mA
- ✧ Size: 154mmx108mmx52.5mm, antenna is retractile and foldable.

**Parts**

1- Telescopic Antenna
2- Digital Readout Meter
3- Rocker Switch, 3 positions Test / Learn / Arm
4- Arm LED / Learn LED
5- Learn Button
6- External Battery Jack
7- Main Switch, lock switch
8- Cue Test LED, total 12 LEDs
9- Cue Fire LED, total 12 LEDs
10- Negative Terminals for cues
11- Positive Terminals for cues
12- Case
13- Battery Enclosure
14- Battery Cover

## B. How the system works in Two Different Firing Modes

### 1) Use Transmitter A for Dividual Firing Mode

There are 12 cues (1-12) on the firing module and 12 fire buttons (1-12) on the transmitter. Press a fire button on the transmitter to fire the same numbered cue on the firing module.

### 2) Use Transmitter B for Interval Firing Mode

The buttons are labeled 0.1-0.9, 1.0, 2.0, ALL. Press the desired interval (in sec.) that you want to have between cues. Immediately, all cues will be fired in order 1-12, with the selected interval (in sec.) between each cue. Push ALL to fire all cues at once.

## C. Before Attaching E-matches/Igniters

### 1) Installing or Connecting Batteries

**Internal batteries:** Remove **Battery Cover** (#14) from battery enclosure. Insert 6xAA batteries into **Battery Enclosure** (#13) and replace **Battery Cover** (#14).

**External battery:** Plug alligator clip wire into **External Battery Jack** (#6), and use red alligator clip to connect the positive (red) terminal of the SLA battery, and black alligator clip to connect the negative (black) terminal.

The firing module will work with either internal batteries or external powers. It will use the power with the higher voltage.

**2) Safety Tests**

Do following steps before attaching e-matches / igniters.

**Step 1:** Turn on the **Main Switch** (#7) and set **Rocker Switch** (#3) to **Learn**. If the battery voltage of **Digital Readout Meter** (#2) is blank While there is LED(s) which is on, **do not use this module,** because the battery voltage is too low to have the module work normally. Turn off the **Main Switch** (#7) and remove internal or external batteries, replace with fully charged batteries or fresh batteries.

**Step 2:** If the firing module is not synchronized to the transmitters, perform "**Learn Codes**" on (see "**Learn Codes / Clear Codes**" below) before performing the next step.

**Step 3:** Set **Rocker Switch** (#3) to **Test.** All **Cue Fire LEDs** (#9) and **Cue Test LEDs** (#8) should be turned on. Any unlit cue is defective.

**Step 4:** Set **Rocker Switch** (#3) to **Arm.** All **Cue Fire LEDs** (#9) and **Cue Test LEDs** (#8) should be off. If any **Cue Fire LED** (#9) stays lit, then that cue is defective.

**Important:** Do **not** attach any e-match/igniter to defective cues under any circumstances, otherwise, that e-match/igniter will fire prematurely. Premature ignition of fireworks can result in death or bodily harm.

**Step 5:** Set **Rocker Switch** (#3) to **Arm.** Extend the **Antenna** (#1). Press and release any Button 1 to 12 on transmitter A, the matching **Cue Fire LED** (#9) should flash on and off. Repeat this for different buttons.

**Step 6:** Set **Rocker Switch** (#3) to **Arm.** Press and release any Button (except **ALL**) on transmitter B, each **Cue Fire LED** (#9) should flash on and off in order using the selected interval. Push **ALL** and all Cue Fire LEDs (#9) should flash on and off.

**Step 7:** Turn off **Main Switch** (#7). Retract **Antenna** (#1).

If the above safety tests are successful, you may attach lead wires of the igniters to the **Negative Terminal** (#10) and **Positive Terminal** (#11).

**D. Some Available Functions:**

**◆ Learn Codes / Clear Codes◆**

You must synchronize (learn) the A & B transmitters to one or more firing modules before they can communicate. Extend the **Antenna** (#1). Turn on the **Main Switch** (#7) and set **Rocker Switch** (#3) to **Learn**. Press **Learn Button** (#5) and hold until **Learn LED** (#4) is lit. Press any button on **Transmitter A** within 5 seconds and, the **Learn LED** (#4) will blink twice, the learning is successful. Repeat the process with **Transmitter B**.
**Note:** The firing module can store the learn codes from one A transmitter and one B transmitter only. If you synchronize another A or B transmitter it will replace the learning of the previous A or B transmitter. You can also synchronize the same transmitter to several firing modules, this allows you to fire the same cue on each synchronized receiver at the same time.

To clear learning codes, press the **Learn Button** (#5) and hold for more than 10 seconds, the **Learn LED** (#4) will light and blink three times, the codes are now cleared.

**◆ Test◆**

You can test the continuity of any e-match/igniter that is connected to the cue terminals. Once all the e-matches/igniters are connected, turn on the **Main Switch** (#7), set **Rocker Switch** (#3) to **Test**, if **Cue Test LED** (#8) is lit and **Cue Fire LED** (#9) is unlit, that cue has continuity. Otherwise there is a bad connection or a bad e-match/igniter.

### ◆ Arm◆

Once the e-matches/igniters have been tested (previous paragraph), the firing module is ready to fire them. Extend the **Antenna** (#1), turn on the **Main Switch** (#7) and set **Rocker Switch** (#3) to **Arm**, **Arm LED** (#4) will be lit. Press a button on a "learned" (see "**Learn Codes**" above) transmitter to send a signal, **Cue Fire LED** (#9) will flash, and the e-match/igniter on that cue will fire. See "**B. How system works in Two Different Firing Modes**" for more details. When finished firing cues, turn off the **Main Switch** (#7) and retract the **Antenna** (#1).

### ◆ Low Power Alarm◆

The **Digital Readout Meter** (#2) will blink continuously when battery voltage is less than 6.5 volts, no matter what **Rocker Switch** (#3) is set to. Now would be a good time to replace the batteries as they have limited use. Turn off the **Main Switch** (#7) and remove internal or external batteries, replace with fully charged batteries or fresh batteries.

### ◆ Digital Readout Meter◆

Set **Rocker Switch** (#3) to **Learn** or **Arm** and the **Digital Readout Meter** (#2) shows the voltage of the battery.

Manufacturer: RFRemotech
E-mail: service@RFRemotech.com
Http://www.RFRemotech.com
June, 2015

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.