PYROMATEINC.

FIRING SYSTEMS

270 Old Dublin Rd
PETERBOROUGH N.H. 03458
PHONE 603-924-4251 FAX 603-924-6748
www.pyromate.com
pyromate@monad.net

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Features of the Night Hawk Panel

- 540 discrete shots, organized as 12 firing modules of 45 shots each.
- Continuity and Fired Status for each of the 45 firing circuits
- Digital Battery Voltage display with Low Battery warning
- 100 minute elapsed time display with pause and reset, retained when power is off
- Illuminated Pushbutton 1-of-12 selection of Firing Modules
- Each selectable Firing Module has a resettable memory of what has been fired
- Separately selectable internal battery or external power supply
- Detachable panel lamp with On/Off switch
- Retain and review history of a fired show by firing order
- Manual fire mode
- Prompted fire mode that informs the operator of next shot to be fired
- Automated Timed Sequential firing mode
- Automated Stepped Sequential firing
- Easily create a firing order script and use it for shot prompting in Prompted fire mode, automated timed firing mode and automated stepped firing mode.
- Splash proof and dust proof firing switches and firing module select switches
- Chemical, scratch and burn resistant electrically isolated front panel

Night Hawk Firing Panel Controls

Battery/External Power Switch
This power rocker switch located in the upper left-hand corner of the panel is a three-position illuminated switch. The Center position is Power Off. The Upper position selects power from the internal battery. The lower position selects power from the External Battery binding posts. The switch is illuminated when power is present and selected.

Panel Lamp On/Off Switch
This switch controls the detachable panel lamp only when the system is on.

Charge Jack
The charging jack is a P5 jack and is used to charge the internal batteries. It requires a supply that delivers 12.0 VDC at 1.5 amps. The center pin is positive. The battery charging circuit will charge the battery even when the Battery/External Power switch is off.

External Battery Power Binding Posts
There are two binding posts located to the left of the Panel Lamp switch. The red post is positive and the black post is negative. These binding posts are provided to allow supplying the panel with 12 volts DC as an alternative to the internal battery supply in the event that the internal batteries become depleted. The allowable supply range is 11 to 15 volts DC, easily supplied by a car type 12-volt battery.

ARM Key Switch
The ARM key switch is located in the upper left-hand side of the panel, to the right of the rocker power switch. It is a two-position key lock switch, with OFF and ARM positions. The key cannot be removed in the ARM position. When the system is powered and the ARM switch is turned to the ARM position, the ARM status light is illuminated. The ARM switch places the system into one of the firing modes, which means that a firing circuit can be activated because the firing voltage supply has been enabled. From the initial ARM state, additional firing modes can be accessed through the Mode and Select buttons. The Manual Random Fire Mode is the first ARMED firing mode presented after arming the system.

2-Line Text Display
The text display is a monochrome LCD, 16 characters long by 2 lines. It is backlit to allow viewing in low light conditions. It provides information on the currently selected mode of operation, access to the system menus and warnings when they occur. The top line typically displays text legends indicating the specific numeric data that appears on the bottom line directly below it means, or in other cases, it may show a menu selection option. *The LCD display cover is Plexiglas and should only be cleaned with mild soap and water. Never use alcohol or any industrial solvent to clean the front of the firing panel.*

Mode Button
To the right of the text display is a vertical row of 3 pushbuttons. The top button is the Mode button. This pushbutton switch accesses a mode sensitive menu through the 2-line

text display. The options displayed in the text display depend on the current mode of operation. If a displayed option is not selected in 5 seconds, the display will revert to the normal display for the current mode.

Reset/- Button

To the right of the text display is a vertical row of 3 pushbuttons. The midle button is the Reset button. This pushbutton switch accesses a mode sensitive RESET menu through the 2-line text display. If a displayed option is not selected in 5 seconds, the display will return to the normal display for the mode currently in use.

Select/+ Button

To the right of the text display is a vertical row of 3 pushbuttons. The bottom button is the Select button. This pushbutton switch is mode sensitive and is used by the panel menu system and the script editing modes. Primarily, it is used to select the option displayed in the text display.

Fire Status (1 - 45)

The Que status indicators show the current continuity and status of each of the 45 firing circuits of the selected Firing Module. They use two-color LED lamps for long life and to provide more information than a single color could. There are 4 basic conditions that are displayed, with additional advanced status possible. The continuity circuit is the green side of a two-color LED with a current limiting resistor. It has a $1/6^{th}$ duty cycle to conserve battery power. The red side of the two-color LED is directly controlled by the panel electronics and is used to communicate captured status of various kinds.

The 1st condition for the indicator is off completely, which occurs when the system is off or if there is no igniter present in the selected firing circuit and the circuit hasn't been activated since the last show or rail memory reset.

The 2nd condition for the indicator is green, showing that there is some type of electrical connection present in the firing circuit. The brightness of the indicator provides some additional information on the relative resistance of the circuit.

The 3rd condition for the indicator is a red color, showing that the firing circuit for the selected Firing Module has been activated since the last rail or show memory reset.

The 4th condition for the indicator is both green and red, indicating that the igniter is still providing an electrical connection somehow after being fired.

The third and fourth conditions are modified by having the red color flashing, showing the last fired que for the selected firing module in Random Manual Fire mode, or the next to be fired in Prompted Manual Fire mode. The way to determine whether the status is flashing for last fired, or next fired, is to look at the 1st line of the text display and observe whether the word FM, Last or Next is shown at the end of the top line.

Firing Status definitions in Status Mode

Condition	Color	Description
1	Off	Not fired, no continuity
2	Green	Not fired, continuity
3	Red	Fired, no continuity
4	Green + Red	Fired, continuity. Possible error, shorted igniter?

Firing Status definitions in Random Fire Mode

Condition	Color	Description
1	Off	Not fired, no continuity
2	Green	Not fired, continuity
3	Red	Fired, no continuity
4	Green + Red	Fired, continuity. Possible error, shorted igniter?
5	Flashing Red	Last fired que of selected rail.
6	Green + Flashing Red	Last fired que of selected rail, system armed similar to condition 4.

Firing Status definitions in Prompted Fire Mode

Condition	Color	Description
1	Off	Not fired, no continuity
2	Green	Not fired, continuity
3	Red	Fired, no continuity
4	Green + Red	Fired, continuity. Possible error, shorted igniter?
5	Flashing Red	Next que to be fired, problem with no continuity.
6	Green + Flashing Red	Next fire que, with continuity.

Firing Switch (1 to 45)
There are 45 firing switches arranged in 5 rows of 9 switches. The switch locations are numbered 1 thru 45 on the panel, with the number positioned between the firing switch and the associated firing status. Each switch is connected to a firing circuit. A firing switch will only fire an igniter when the ARM key switch is turned to the ARM position.

FM Select buttons (A – L)
The Firing Module select switches are in a vertical column of 12 round illuminated pushbutton switches located on the right side of the panel adjacent to the associated firing module connector. Only one Firing Module may be selected at a time. When a desired firing module is selected, the switch illuminates and the memory for what previous activations of the firing switches is recalled and displayed on the fire status lights and the text display when appropriate. At the same time the FM letter is updated on the right hand side of the bottom line of the text display.

Remote Fire Connector
This connector is positioned directly below the power rocker switch. Not used for manual fire modes. Used to support automated firing. The remote fire control has a hold fire safety and a fire trigger. When the Automated firing modes are used, the remote fire control must be installed. Automated firing will only occur when the Remote Hold Fire is held depressed.

9 pin Serial Port
Used to transfer firing scripts to and from the firing panel.

Built In Functions
Digital Voltage Display
Panel system voltage is displayed from 0.0 to 20.4 volts with 0.1-volt resolution. When the voltage drops below 10.7 volts, a low voltage message will appear in the voltage display area.

Battery/Power Status Display
The left side of the top line of the text display shows the power source status when the power switch is set on either Battery or External. If the battery charger is plugged into the charging jack, the Status will indicate whether the batteries are charging or full. The statuses are "Batt", "Chrg", "Full", "Ext " and "Ext+". The "Ext+" status indicates that the batteries are charged and that the battery charger is plugged into the charging jack.

Firing Module Memory
Each of the 12 selectable firing module connectors has a memory associated with it that tracks firing history. The operator can individually reset each firing module history. The information saved is the accumulated fired shots for that module and the last fired shot. This information is retained when the panel is turned off, as long as the power is not turned off while in FIRE mode. This fired information is used for the red fire status indicators in the different modes of operation.

Show Memory
This memory captures a history of what shots have been fired by time and module. The operator can reset it. It also saves the elapsed time when the panel is switched from FIRE mode to Status mode. This information is retained when the panel is turned off, as long as the power is not turned off while in FIRE mode.

Firing Script Memory
The firing script memory is a list for shots that has been entered into the panel memory. It is similar to the Show memory, but is used by the Prompted fire mode to help the operator follow a preset firing order. Each module's shots are also accumulated when the operator captures the firing script using the panel. This information is retained when the panel is turned off. The shot number starts at 1 and goes to a maximum of 540.

Elapsed Timer
There is an elapsed time function that is present in the panel that tracks the time from an initiating event. The initiating event is always a firing switch activation. The timer is paused when the mode that it was running in is changed. The maximum timer value is 99 minutes 59.9 seconds with 0.1-second resolution.

Night Hawk Firing Panel Operational Modes

Power On/Version Display
When the panel is turned on, it will display the Version number of the internal software for three seconds, and then it goes to the Continuity mode display.

```
      NightHawk
     Version 1.00
```

Time = 0

```
Batt          FM
12.6           A
```

Time not 0

```
Batt   Time    FM
12.6  1:23.4   2B
```

Continuity/Status Mode
This mode is the default mode of operation when the firing system is not ARMED. In this mode, the firing system displays the continuity status and the fired status of each of the firing switches 1- 45 circuits' for each selected Firing Modules connectors. The text display shows the battery voltage, elapsed time and the selected firing module. If the elapsed time is 0:00.0, the time field is cleared to blank. The firing module memory for the selected display is reflected on the firing status indicators, but without the last fired information.

There are two menus available in this mode, the Mode menu options and the Reset menu options. If the menu option presented is not selected within 5 seconds, the display will return to the default condition showing the voltage, elapsed time and the selected rail.

Status Mode Menus

```
Batt          FM
12.6           A
```
●
```
Review Show List
Press Select
```
●
```
Review Script
Press Select
```
●
```
Create Script
Press Select
```
●
```
Play Script
Press Select
```
●
```
Batt          FM
12.6           A
```

Status Reset Menus

```
Batt          FM
12.6           A
```
●
```
RST Timer?
Press Select
```
●
```
RST Rail Memory?
Press Select
```
●
```
RST Show Memory?
Press Select
```
●
```
RST Fire Script?
Press Select
```
●
```
Batt          FM
12.6           A
```

Review Show List Sub mode –
This status sub mode is available to allow review of the fired show history. It is accessed by pressing the Mode pushbutton until the text display shows:

```
Review Show List
Press Select
```

Then press the Select/- pushbutton to enter the review show sub mode. This is the initial display of the review show list mode:

```
Show History
Total =   53
```

The value of Total can be 0 to 540. It depends on what was fired by the operator. Pressing the Reset/+ pushbutton will advance the display to the first entry in the list.

Total = 0	*Total not 0*
```Shot Time Last 0 0:00.0 A```	```Shot Time Last 1 0:00.0 1A```

While in this mode, the Reset/+ pushbutton advances the display thru the captured show memory, and the Select/- pushbutton steps backward thru the show memory. When the end of the captured memory is reached, the display shows:

```
End of Show
540 99:59.9 45L
```

The actual second line will reflect what was the last entry of the show that was captured.

When a fire status LED is flashing red, it indicates the fired que in the history list associated with the elapsed time. As the list is stepped thru, the previously fired que turns red. If a different firing module is required for the current que, it is automatically selected.

Review Fire List Sub mode –
This status sub mode is available to allow review of the captured fire script. It is entered by pressing the Mode pushbutton until the text display shows:

```
Review Fire List
Press Select
```

Then press the Select/- pushbutton to enter the review fire list sub mode. This is the initial display of the review fire list mode:

```
  Show Script
  Total =  53
```

Where Total is the number of captured entries in the firing script from 0 to 540. Pressing the Reset/+ key advances to the 1st entry in the script.

Total = 0	*Total not 0*
```Shot Time Next``` ``` 0 0:00.0 A```	```Shot Time Next``` ``` 1 0:00.0 1A```

While in this mode, the Reset/+ pushbutton advances the display thru the captured firing script memory, and the Select/- pushbutton steps backward thru the script memory. When the end of the captured memory is reached, the top line of the display shows:

```
  End of Show
 540 99:59.9 45L
```

The bottom line contains whatever was the last captured shot entry.

When a fire status LED is flashing red, it indicates the next suggested que to fire in the firing list. As the firing list is stepped thru, the previously suggested firing que turns red. If a different firing module is required for the next que, it is automatically selected.

Create Fire List Sub mode –
This status sub mode is available to allow the creation of the firing script list used by the Prompted Fire mode. It is entered by pressing the Mode pushbutton until the text display shows:

```
Create Fire List
Press Select
```

Then press the Select/- pushbutton to enter the create fire list sub mode. This is the initial display of the create fire list mode if the fire script memory has been reset.

```
Shot   Time   Last
   0  0:00.0    A
```

While in this mode, any activation of the firing switches will add an entry to the fire script. The captured entry contains the firing switch, the firing module and the firing time. To remove the last entry in the list, press the *Select/-* pushbutton. This also rolls back the elapsed time to the previous entry's captured time. To exit this mode, press the Mode pushbutton. When the mode is exited, the last entry is saved in long-term storage.

To create a new firing script, first reset the existing firing script memory by pressing the Reset/+ pushbutton until the display shows:

```
RST Fire Script?
Press Select
```

Then press the Select pushbutton. This will clear the script memory and the script firing module memories.

Next, press the Mode pushbutton until the Create Fire List option shows in the display and press the Select pushbutton to enter it.

The display shows a shot number of 0 and the timer is paused, waiting for the 1st firing event. Select the firing module that contains the 1st que and activate the firing switch of that que. The shot number will advance to 1 and the elapsed time starts running. Selecting the correct firing module and entering the que is just like firing a show in manual firing mode, only the panel is not armed. The script firing module memory retains the firing switches activated for each module in this mode along with what was last fired, until it is cleared using the RST firing script option.

When the script has been captured, the mode can be exited by pressing the Mode pushbutton. When this is done, the end point of the script is saved in storage and will be remembered if panel power is turned off.

If a firing script has already been partially captured, re-entering the create mode will go to the end of the existing script and allow the operator to extend it.

Firing Modes

There are currently four firing mode available for this version of software. They are Manual fire mode, Prompted fire mode, Timed fire mode and Stepped fire mode. These firing modes are accessed using the Mode pushbutton after entering the fire mode using the ARM key switch. The firing script cannot be reset in Fire mode.

Firing Mode Menus

```
Batt   Time   Last
12.6  0:00.0    A
```

●

```
PROMPTED FIRE?
Press Select
```

●

```
TIMED FIRE?
Press Select
```

●

```
STEPPED FIRE?
Press Select
```

●

```
Batt   Time   Last
12.6  0:00.0    A
```

Manual Firing Mode

This is the default firing mode of the system, and is entered when the panel is on and the ARM key lock switch is set to the ARM position. If the systems' show memory has been reset the text display shows:

```
Batt   Time   Last
12.6  0:00.0    A
```

Otherwise the text display will show something similar to this:

```
Batt   Time   Last
12.3 13:50.7 41A
```

The Batt text area and the number below it is the system main power voltage with 0.1 volt resolution. If the system voltage drops to 10.6 volts and lower, the number will be replaced by the word "Low" to indicate a system problem. *At that time, the system must be switched to the Ext Battery power selection on the Power switch or the system must be charged to avoid damage to the internal battery.*

The Time text area shows the elapsed time from when the first que was fired until the timer was stopped by turning the ARM key switch to the OFF position. The timer resolution is in 0.1-second increments.

The Last text area shows the last fired que of the currently selected Firing Module. If there as been any que fired from the currently selected Firing Module, the last fired que

will be flashing at a 5 times a second rate. This position of the top line will show one of three different words, "FM", "Last" or "Next". "FM" stands for Firing Module, and usually indicates that the panel is in the Continuity/Status mode. "Last" usually indicates that the flashing firing status LED is the last fired que. "Next" in this area is reserved for Prompted Fire Mode, to indicate that the flashing status LED is the que to be fired next. The number next to the letter (A-L) designates the lowest numbered que that is flashing.

When entered from the Status mode, the elapsed time will be paused. It will start or continue as soon as a firing switch is activated, and will run until the operator turns the ARM switch to OFF or the power switch is turned off. *If the power switch is turned off while the panel is still in ARM and the timer is running, the latest elapsed time will not be saved!* Always try to turn the panel ARM key switch to OFF before turning the panel power off.

Each time a firing switch is activated, a record is captured of the elapsed time, que number and firing module. These captured events make up a show history that is retained in memory even when power is turned off. This show history can later be reviewed.

The Firing Module can be selected and activated by pressing the desired Firing Module selector switch, which will then display the status history of that Firing Module. As noted above, if any of the ques have been fired from the Firing Module, the last fired que is flashing red to make it easier to locate quickly.

Prompted Fire Mode
This is an advanced Manual fire mode that has the additional feature of suggesting to the operator the firing order of the show, derived from a firing order script that was previously entered into the internal memory of the firing system. This mode only uses the script firing order, not the time for the prompting.

The mode is entered is when the ARM key is turned and the system placed in manual fire mode and the *Mode* button is pressed once to cause the text display to show:

```
PROMPTED FIRE?
Press Select
```

To select this mode, the *Select/-* button is pressed, causing the system to enter the mode and display the first suggested firing que as a red flashing status indicator. If there is no entered firing script present the text display will show:

```
No Fire Script!
```

If there is a firing script in memory, the bottom line will have the same display except for the last 3 characters which will show a number from 1 to 45 and a letter from A-L to indicate which que on what FM is the one to be activated by toggling the appropriate firing switch.

```
Shot   Time   Next
   1  0:00.0   1A
```

This is an example of the last possible entry and display of a programmed firing list.

```
Shot   Time   Next
 540 99:59.9 45L
```

Once the suggested que has been fired and released, the system will advance to the next que in the script. The time display will begin to run. The system will automatically select the appropriate Firing Module if it isn't the current Firing Module each time it advances. The script will not advance if the suggested que is not fired, unless the operator forces the system to skip the entry by pressing the *Reset/+* pushbutton. The previous entry can be repeated if the operator presses the *Select/-* pushbutton.

If there is a need to deviate from the firing script, a que can be fired out of order on the currently selected Firing Module, or from a different Firing Module by selecting it using buttons A-L. Press the *Mode* pushbutton to return to the currently suggested que or the *Reset/+* or *Select/–* buttons to go back or forward in the script. While out of script firing is taking place, the top line of the text display will show *Last* instead of *Next* to show that the Prompted firing is temporarily suspended. If a shot on the currently selected firing module is fired out of order without changing firing modules and the top line still shows "`Shot   Time   Next`", then the fired que will not flash. Instead, the next suggested que would continue to flash until it is fired. If the firing module is changed by the operator from the panel selected firing module, the top line changes to "`Shot   Time Last`" and the flashing firing status indicates last fired instead of next fired.

Normal Prompted Fire *Prompted Fire Temporarily Diverted*

```
Shot   Time   Next
   5  1:23.4 23A
```
```
Shot   Time   Last
   5  1:23.4   2B
```

To pause the Prompted Fire Mode for any reason, turn the ARM key switch to OFF. To resume the Prompted Fire Mode at the point where the show left off, re-enter the Prompted Fire Mode by pressing the *Mode* and then the *Select* pushbuttons before any fire switches are activated. The fire script will be at the shot that was last displayed. If the show needs to be restarted, the show memory must be reset. Alternately, the script can be advanced or backed up to any point within the script by using the *Select/-* and the *Reset/+* pushbuttons.

When the last entry in the firing script has been fired, the text display will show something similar to the following:

```
 `End of Show
120 15:36.7 45E
```

At the end of the firing script, the shot number stops advancing but the timer will continue to run until the ARM switch is turned to OFF or the time reaches 99:59.9.

If any shots need to be fired out of order, or if there are additional shots that weren't entered into the firing list, they can be fired at any time by selecting the necessary firing module and activating the appropriate firing switch. To return to the firing order, press the *Mode, Select or Reset* pushbuttons, which will restart the current entry in the firing list with the correct firing module selected for that shot.

Timed Fire Mode

This is a basic automated sequential timed firing mode that uses time as the event trigger to fire a preprogrammed firing script. The remote fire control is used to start and execute the firing mode. The Remote Hold fire switch must be held depressed for the firing script to be executed before, during and after the Remote Fire trigger is pressed. While in this firing mode, the Que fire switches and the module selector switches on the panel are disabled and have no effect on the fire program.

The time field of the shot entry determines the time to fire the pending shot entry. Each shot entry contains the selected firing module, the time and at least one Que to be fired when the time matches the running elapsed timer. The shot entries are executed in the order they appear in the firing script.

The mode is entered is when the ARM key is turned and the system placed in manual fire mode and the *Mode* button is pressed twice to cause the text display to show:

```
TIMED FIRE?
Press Select
```

Once the Select switch is pressed, the display will show one of the following:

Remote Hold fire not depressed

```
Press Hold Fire!
   Total = xxx
```
Note: xxx is the actual number of shot entries in the firing script.

Script total = 0

```
No Fire Script!
```
Mode reverts to Manual fire display after 2 seconds

```
Batt   Time   Last
12.6   0:00.0    A
```

Remote Hold fire depressed

```
Timed Autofire
      Total = xxx
```
Display changes to show default timed display after 1.25 seconds

```
Timed Autofire
   1   0:00.0   1A
```

The firing mode is started when the Remote Fire trigger is pressed while the Remote Hold fire switch is held depressed. The elapsed timer begins to run, and if there is a shot entry that corresponds to the beginning time, it is fired. The elapsed timer will only run when the Remote Hold fire switch is held depressed. As soon as the Remote Hold fire switch is released, the elapsed timer will stop running and the firing mode is paused.

The text display has the format where the top line shows the internal system voltage, the running elapsed timer and the last fired Que. The bottom line shows the next shot event number, the next shot event time and the next shot event Que. Something like the following:

```
12.6   1:19.1  42A
   12  1:22.7  13B
```

The highlighted area of the top line shows the elapsed timer display field that shows the advancing show time.

When the Remote Hold fire switch is released while the fire program is running, the elapsed timer is stopped and the text display shows something similar to the following:

```
Press Hold Fire!
   12  1:22.7  13B
```

When the Remote Hold fire switch is again depressed while the fire program is paused, the elapsed timer is still paused and the text display shows something similar to the following:

```
Timed Autofire
   12  1:22.7 13B
```

Switching to this after 1.25 seconds:

```
12.6  1:19.1 12C
  12  1:22.7 13B
```

Pressing the Remote Fire trigger while the Remote Hold fire switch is still held depressed will start the fire program running at the point it was paused.

Shot events in the fire program may be repeated or skipped over only while the timed firing mode is paused by releasing the Remote Hold fire switch. This is accomplished by pressing the *-/Reset* and the *+/Select* pushbuttons. When a shot event is selected using the *-/Reset* and the *+/Select* pushbuttons, the elapsed timer is updated to the pending time field of the new shot event minus 0.1 seconds. This is to allow the operator to start the fire program at a predictable point in the show.

Stepped Fire Mode

This is a basic automated sequential stepped firing mode that uses the Remote Fire trigger as the event trigger to fire a preprogrammed firing script. The remote fire control is used to execute the firing mode. The Remote Hold fire switch must be held depressed for the firing script to be executed before, during and after the Remote Fire trigger is pressed. While in this firing mode, the Que fire switches and the module selector switches on the panel are disabled and have no effect on the fire program.

The shot number field of the shot entry determines the order to fire the pending shot entry. Each shot entry contains the selected firing module, the time and at least one Que to be fired when the time matches the running elapsed timer. The shot entries are executed in the order they appear in the firing script with each press of the Remote Fire trigger.

The mode is entered is when the ARM key is turned and the system placed in manual fire mode and the *Mode* button is pressed three times to cause the text display to show:

```
STEPPED FIRE?
Press Select
```

Once the Select switch is pressed, the display will show one of the following:

Remote Hold fire not depressed	*Script total = 0*	*Remote Hold fire depressed*
```Press Hold Fire! Total = xxx```	```No Fire Script!```	```Stepped Autofire Total = xxx```
Note: xxx is the actual number of shot entries in the firing script.	*Mode reverts to Manual fire display after 2 seconds*	*Display changes to show default timed display after 1.25 seconds*
	```Batt Time Last 12.6 0:00.0 A```	```12.6 0:00.0 1A 1 0:00.0 1A```

The firing mode is started when the Remote Fire trigger is pressed while the Remote Hold fire switch is held depressed. The elapsed timer begins to run, and the shot entry that corresponds to the beginning shot number is fired. The elapsed timer will only run when the Remote Hold fire switch is held depressed. As soon as the Remote Hold fire switch is released, the elapsed timer will stop running and the firing mode is paused.

The text display has the format where the top line shows the internal system voltage, the last fired elapsed time and the last fired Que. The bottom line shows the next shot event number, the current elapsed time and the next shot event Que. Something like the following:

```
12.6  1:19.1 42A
  12  1:22.7 13B
```

The highlighted area of the bottom line shows the elapsed timer display field that shows the advancing show time.

When the Remote Hold fire switch is released while the fire program is running, the elapsed timer is stopped and the text display shows something similar to the following:

```
Press Hold Fire!
  12   1:22.7 13B
```

When the Remote Hold fire switch is again depressed while the fire program is paused, the elapsed timer is still paused and the text display shows something similar to the following:

```
Stepped Autofire
  12   1:22.7 13B
```

Switching to this after 1.25 seconds:

```
12.6  1:19.1 12C
  12   1:22.7 13B
```

Pressing the Remote fire trigger while the Remote Hold fire switch is still held depressed will start the fire program running at the point it was paused.

Shot events in the fire program may be repeated or skipped over only while the stepped firing mode is paused by releasing the Remote Hold fire switch. This is accomplished by pressing the *-/Reset* and the *+/Select* pushbuttons. This is to allow the operator to start the fire program at a predictable point in the show.

DISCLAIMER;

The purpose of this equipment is to cause initiation of industry standard Pyrotechnic electric matches to ignite display type fireworks or pyrotechnic special effects.
Fireworks and special effects materials are explosives and may cause personal injuries or death to yourself or others, including spectators.
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FIRING SYSTEMS
270 Old Dublin Rd
PETERBOROUGH N.H. 03458
PHONE 603-924-4251 FAX 603-924-6748
www.pyromate.com
pyromate@monad.net