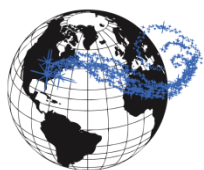


SNOW STORM EVAPORATIVE SNOW MACHINE

The Snow Storm



GLOBAL
SPECIAL EFFECTS

WELCOME

Important Information About your SNOWSTORM Snow Machine

THE SNOWSTORM

Congratulations on your purchase of this Global Special Effects snow machine. With your snow machine you will dazzle and entertain audiences in large or small venues. Your SNOWSTORM snow machine is loaded with advanced features, but at the same time it is very easy to use.

The SNOWSTORM is a modernized design in a family of special effects snow machines used for years in Movie Productions, Theatres, Malls, and Presentations. This futuristic modeled “work-horse” sprays evaporative snow from its nozzle section and creates a realistic snowfall effect without residue or cold air. With its reliable, efficient and low-volume design, the SNOWSTORM is a marvel for stage productions, fancy presentations or unique weddings. The tethered remote and the DMX give the user control over snow flake size and instant activation.

IMPORTANT PRODUCT AND SAFETY INFORMATION

Failure to follow these instructions can cause serious bodily injury or property damage.

CAUTION: YOU MUST READ THE FOLLOWING BEFORE OPERATING THE SNOW STORM



The SNOW STORM is an Electric Product - not a Toy. To avoid the risk of fire, burns, personal injury, and electric shock, ***it should not be played with and should be placed out of the reach of small children.*** Adult supervision is continuously necessary to avoid the risk of electric shock or personal injury. Never remove the covers or open the enclosures.



The SNOW STORM generates evaporative snow™ that normally dissipates completely when dispensed from the ground to 20-30 ft in the air.. Since the residue is slippery, it is important to follow all the directions in this manual to avoid this type of problem.

Never operate the SNOW STORM without evaporative snow™ in the solution bottle. Do not run the SNOW STORM when the Gallon Solution bottle is holding less than a pint of solution. If you do not follow these directions, the SNOW STORM can be damaged and warranty voided.

Never leave the SNOW STORM unattended while operating. Do not operate it in the rain or near standing water. Always use an outlet with an earth grounding receptacle and a Ground Fault Circuit Interrupt (GFCI).

***Never use this product for any activity other than for what it is intended.
Never add flammable liquids (oil, gas, alcohol, perfume) to the snow solution.***

SNOWSTORM Snow Machine Features and Specifications

Features

The best Evaporative Snow Machine in the world.

- ❖ 4-channel DMX control
- ❖ Remote control (rented/sold separately)
- ❖ Variable stand alone features
- ❖ Lifetime warranty
- ❖ 24-Hour Technical Service
- ❖ Repeat Cycle Timer (5 min. and 15 min. cycles)

Specifications

Voltage:	q 110 60 Hz or 220v	q 220v	q 100v
Current:	18Amps		
Size:	22" Wide, 27" Long and 25" Tall (without the yoke and "C" Clamp)		
Weight:	55 lbs		
Materials:	Predominately: Polyethylene Exterior with steel covers, bracket and yoke.		
Color:	Black and White		
Snow Solution:	Usage Rate of 3 gallons per hour of solution.		
Solution Contains:	1 gallon or 4.3 liters		
Power Cable Length:	7 ft		
Tether Length To Remote:	30 ft		
Sound:	74 db @ 9.8 feet		

Evaporative Snow™ Solution Mixture

Solution Mixture:

Global Special Effects™ Labs are constantly inventing and reformulating solutions in order to improve the snow from the SNOW STORM. Please contact Global Special Effects™ at 256-229-5551 for more information. In order to prevent operation problems and observe the Warranty guidelines, always use a Global Special Effects™ approved solution. The FG-100 Snow Solution comes premixed and ready to use. You will have to pour the solution into the plastic bottle that comes with the SNOW STORM, if the solution bottle does not fit into the well on the SNOW STORM.

FG-100 Evaporative Snow™ premixed. Recommended

Global Special Effects premixed solutions are designed with the highest grade of available water based surfactants. The surfactant-based solution is mixed with de-ionized water to leave no residue when using the snow machine properly. The use of de-ionized water is necessary to create a bright fluffy snowflake. Global Special Effects Laboratories have researched and developed the driest available snow solution on the market today. FG-100 premixed weight: 9.8 pounds.

Using Evaporative Snow™ concentrate solution FG-100C

Global Special Effects Labs have designed a concentrated version of FG-100 premixed in an attempt to save shipping cost to our customers. The ratio mix for this snow solution is 8 oz. of solution per one gallon of water. It is important to remember that the kind of water used will affect the quality of snow. The recommended water to use is de-ionized water. This form of water has no minerals, hard properties or chlorine. De-ionized water is the base ingredient in our formulation, because it makes the best foam and leaves no water stains. It was originally used for the movie industry, so if the snow landed on a camera lens, it would not leave a water ring. Since this formulation has no chemical, it dries and leaves no film. De-ionized water is not available in grocery stores and can only be found at medical supply companies. If your event does not require the use of a movie camera or will not land on glass, distilled water may be used. Be aware that if you use tap water, it may have hard agents that can cause poor looking snow. In this case, order FG-100 premix. The use of tap water, city water or well water can be used with the following warnings: Certain tap waters contain high mineral content and will produce a minimal amount of snow. These minerals will not produce a bright white flake. If de-ionized water is not available, use distilled water.

See chart below (Chart 1) for some examples of common water/solution ratios. Please read before mixing this product with water. Make sure you adhere to the mixing proportions.

Warning if you mix water with FG-100 premixed (non-concentrate), you will not be able to generate snow. FG-100C Concentrate 8 oz bottle weight: 0.5 lb.

Chart 1

WATER	FG-100 CONCENTRATE		
	Tablespoons	Pints	Fluid Ounces
½ gallon	8	¼	4
1gallon	16	½	8
2 gallons	32	1	16
5 gallons	80	2 ½	40



Lightly Shake or Stir the solution in the container before operating the SNOW STORM.

General Operating Instructions

Operating Instructions:

The SNOW STORM has some simple instructions that must be carefully followed in order to create the desired evaporative snowfall, ensure the safety of the operators/participants and to protect the equipment from damage.

PLEASE FOLLOW THESE INSTRUCTIONS CAREFULLY.

1) Mount the SNOW STORM on a secure, dry and level platform. Since the larger the flake size the slower it will be to evaporate, Chart 2 recommends Rotary Switch or Remote settings to minimize residue on the ground. For safety reasons, the SNOW STORM should be unplugged from the electrical outlet while placing it in your desired location. The Nozzle should be pointed in the direction you want it to spray snow. Hang or route the 30 ft. tethered remote as required to the desired operating location without pinching the wire. **Do not operate the SNOW STORM in the rain. The SNOW STORM is not waterproof. If it gets wet, unplug the snow machine and contact “Global Special Effects™” technical support at 1-256-229-5551.**

Chart 2

Approximate Rotary Switch or Dial Remote Settings
Relative to Mounting Height to Minimize Residue

Rotary Switch Setting	or Remote Setting 900s	Snowflake Size	Mounting Height
880-899	5	1/4 - 1/2 inch	30 ft
879-860	4	3/16 - 3/8 inch	25 ft
859-840	3	1/8 - 1/4 inch	20 ft
839-820	2	1/16 - 3/16 inch	15 ft
819-800	1	0 - 3/16 inch	10 ft*

* 10 ft is probably too low to prevent some residue on the ground.

- 2) If the snow solution is a concentrate, prepare the snow solution in the empty plastic gallon bottle provided (located in the SNOW STORM solution bottle well) per the “Solution Mixture” section of this manual (See Chart 1). If the correct water/concentrate mix is not blended properly, the SNOW STORM may not create the ideal evaporative snowflakes. Place the clear tube in the container with the “Solution Mixture” and push it down so that the open end reaches the bottom of the filled container. The pump in the SNOW STORM is self-priming.
- 3) In order to start the SNOW STORM, plug the Snow Machine power cord into an outlet with a 3rd lead grounded conductor (preferably a Ground Fault Circuit Interrupt -GFCI). Next, turn the power

General Operating Instructions

Operating Instructions:

switch “ON” in the back of the SNOW STORM. If you are using the DMX features, read the section on DMX settings to get the proper response. If you are using the remote, set the DMX display on the back

of the SNOW STORM unit to any number between 900-999. Press the “ON” switch on the tethered remote to start the snowfall. Adjust the dial on the remote to set the desired snowflake size (See Chart 2). Rotate the dial clockwise to obtain larger flakes and counterclockwise for smaller flakes. If the flakes are sticking to the ground during an initial run, adjust the dial counterclockwise, after drying off the ground surface (snowflakes accumulate more easily on a wet surface). Press “OFF” to turn off the snow on the tethered remote. Do not operate the SNOW STORM without the clear tube submerged in the filled solution container.

- 4) If the solution has drained out of the clear tube during a rest period for the SNOW STORM, it may take a minute or two for the pump to self-prime itself from the solution container liquid.
- 5) On the tethered remote, a blinking light signifies that the Power is “ON”. A constant light from the LED signifies that the SNOW STORM is blowing evaporative snow. If the light on the remote is completely off, the unit is not powered up and cannot be controlled from the remote.
- 6) To turn the power OFF, push down on the red “O” button on the back of the unit.

DMX Settings SNOWSTORM

The DMX settings are key to the operation of the SNOW STORM. The three-digit number on the back of the SNOW STORM panel determines the operation mode for the SNOW STORM. Warning: there are DMX settings where the SNOW STORM will appear not to operate, so always review the tables below during setup and operation.

8	9	6
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RANGE	ACTIVITY
000 508	DMX Address- Outside Interface
509 599	Standby- No Activity
600 699	Short Cycles of ON/OFF Activity
700 799	Long Cycles of ON/OFF Activity
800 849	Zero to Minimal Snow-Blower Operates
850 859	Snow Flurry- Lowest Outputs
860 879	Light Snowfall- Smallest Flakes
880 889	Sub-Blizzard- Larger Snow Flakes
890 895	Ideal Range of Operation at 30 ft height
896 899	Maximum Snow Output- Largest Flakes
900 999	Remote Control Activated (Note: 5 Pin DMX must be disconnected.)
	See Chart 2 for Remote Controlled Flake Size

Using the Controller

Snow Machine Controller

The snow machine controller consists of one fan relay, a pump controller and control interface capable of receiving a DMX signal or a proprietary remote control signal. The DMX address is set via a three digit rotary switch located on the back of the device. The DMX address is set in a decimal fashion.

*SELECTED START ADDRESS			
	Cycle Time		Flake Size
100	100	100	100
:	:	:	:
0	0	0	0

The DMX interface is compliant with DMX-512 standards and electrically isolated to 1000VAC. The starting address can be set from 1 to 509. The DMX protocol requires 4 dimmers defined as Mode, Cycle Time, Duration and Flake Size. The Mode dimmer defines the overall operation of the snow machine - Off, On, and Momentary. The Mode dimmer will correspond to the selected start address, with the Cycle Time, Duration, and Flake Size channels in the following

order.

DMX Mode Channel Level

100 : 75	Always On
74 : 51	15 Min Cycle
50 : 25	5 Min Cycle
24 : 0	Off

When the mode channel is set to one of the Momentary positions (either 5 or 15 min cycle), the Cycle Time and Duration channels become active. The cycle time channel establishes the time it takes for the entire event. Duration channel is the length of time of snow output. The minimum time of one cycle is 18 seconds with a ten second ON time, a four second SNEEZE, and a four second WAIT. A sneeze is when the blower remains on without the pump and dries the sock, preventing postnasal drip.

The following tables show all the settings that can be attained with the use of the three digit rotary switch located on the back of the device. An 'X' indicates that the number in that position does not matter for the required result to be attained. Switch A is in the hundreds position, Switch B is in the tens position, and Switch C is in the ones position.

Table 1- Mode Settings

A	B	C	Mode
0	0	0	Idle
0	0	1	
:	:	:	DMX
5	0	9	
5	1	0	
:	:	:	Idle
5	9	9	
6	X	X	5 Min Cycle
7	X	X	15 Min Cycle
8	X	X	Always On
9	X	X	Remote

Table 1 shows that there are six modes in which the device may operate: Idle, DMX, 5 minute cycle, 15 minute cycle, always on, and remote.

Using the Controller

Snow Machine Controller

Table 2 – 5 Minute Cycle

A	B	C	ON Time	WAIT Time
6	0	X	15 Seconds	4 Minutes 45 Seconds
6	1	X	30 Seconds	4 Minutes 30 Seconds
6	2	X	1 Minute	4 Minutes
6	3	X	1 Minute 30 Seconds	3 Minutes 30 Seconds
6	4	X	2 Minutes	3 Minutes
6	5	X	2 Minute 30 Seconds	2 Minutes 30 Seconds
6	6	X	3 Minutes	2 Minutes
6	7	X	3 Minute 30 Seconds	1 Minute 30 Seconds
6	8	X	4 Minutes	1 Minute
6	9	X	4 Minute 30 Seconds	30 Seconds

Table 2 displays the settings for the 5 minute cycle. Within this mode, the device cycles are dependent on the B switch setting. The cycle time is the total time of the event, and the “on time” is the length of time of snow output, similar to the duration in the “DMX mode”. Otherwise, the machine is in a WAIT state

Table 3 – 15 Minute Cycle

A	B	C	ON Time	WAIT Time
7	0	X	45 Seconds	14 Minutes 15 Seconds
7	1	X	1 Minute 30 Seconds	13 Minutes 30 Seconds
7	2	X	3 Minutes	12 Minutes
7	3	X	4 Minutes 30 Seconds	10 Minutes 30 Seconds
7	4	X	6 Minutes	9 Minutes
7	5	X	7 Minute 30 Seconds	7 Minutes 30 Seconds
7	6	X	9 Minutes	6 Minutes
7	7	X	10 Minute 30 Seconds	4 Minute 30 Seconds
7	8	X	12 Minutes	3 Minutes
7	9	X	13 Minute 30 Seconds	1 Minute 30 Seconds

Table 3 displays the settings for the 15 minute cycle. Within this mode, the device cycles are dependent on the B switch setting. The cycle time is the total time of the event, and the “on time” is the length of time of snow output, similar to the duration in the “DMX mode”. Otherwise, the machine is in a WAIT state

Table 4 – Flake Size Settings

A	B	C	Flake Size
6/7	X	0	1
6/7	X	1	2
6/7	X	2	3
6/7	X	3	4
6/7	X	4	5
6/7	X	5	6
6/7	X	6	7
6/7	X	7	8
6/7	X	8	9
6/7	X	9	10

Table 4 shows the use of switch C during 5 minute or 15 minute cycle modes (Switch A is 6 or 7). Switch C controls the flake size.

Using the Controller and the Remote

Snow Machine Controller

Table 5 shows the use of switches B and C when switch A is set to 8 (Always On state). Switches B and C work similarly to Switch C when in the 5 minute and 15 minute cycle modes. It controls the flake size. The user then has 100 choices of flake size.

Table 5 -Always on Flake size setting.

A	B	C	Flake Size
8	0	0	1%
8	:	:	:
8	9	9	100%

The DMX interface is also provided as a pass through connection. The remote interface utilizes standard pins 4 and 5 of the 5 pin XLR connector to supply power to the remote control. Pins 4 and 5 are pass through when used in a DMX configuration. Pins 4 and 5 have power applied to them only when the DMX selector is set to the 900s and this power is used to power the remote.

Note: The user should avoid configuring the 'A' selector to the 9 position while a DMX connection is being used.

There is a provision on the controller board for an additional fan control relay rated at 10 amps. This relay has a completely separate power interface.

Remote Control

The remote control provides a tethered remote control connection to the snow machine. The 3 rotary switches must be at 900 or greater for remote function to be enabled. The remote has control over the on/off and flake size functions. The flake size knob provides variable settings from small (0) to large (5) flakes. There is also a status LED to inform the user that the unit is on and powered.

When the unit is powered and the power switch on the remote is set to the off position, the red LED on the remote will slowly pulse to inform the user that the unit is in standby. When the user changes the switch to on, the LED will go to a solid red.

While in "remote mode", Rotary Switch controls the flake size. The "remote mode" also allows for the use of a quick on/off switch located on the remote control.



Maintenance Information and Precautions

General Maintenance

The **SNOWSTORM** is a low maintenance unit.

Cleaning and Storing the **SNOWSTORM**

In order to clean the SNOW STORM, fill another plastic container half full with water and run the unit for

3-5 minutes with the nozzle tilted downward into another container (if possible). You may clean the plastic exterior of the SNOW STORM with detergent and water. Do not stack other boxes or items on top of the SNOW STORM. Store the SNOW STORM in a cool, dry environment between 40-80 degrees F. If electrical wires are frayed, contact the factory at 256-229-5551 for service. **Never operate the SNOW STORM with a frayed electrical wire.**

Caution: Never remove the cover or housing screws on the Snow Machine. This action will nullify the warranty. Contact customer service at 256-229-5551.

General Repair: The SNOW STORM Snow Machine has a lifetime warranty **and should never require you to disassemble the unit.** Please contact Global Special Effects™ service at 256-229-5551 if you have questions on its operation or warranty.

Always use Global Special Effects™ approved snow solutions or the Lifetime Warranty will be nullified.

Types of Trouble and Their Solutions

Symptoms and Cause and/or Corrective Actions

1 If the SNOW STORM does not generate snow, review the following checklist.

a) When turned “ON”, is the Fan Operating? (Air is shooting out the nozzle of the SNOW STORM).

Yes: Move on to (b)

No: Check the electric plug interface at the outlet connection, and make sure the remote connector is connected to the main unit. Check to see if the power switch is “ON” on the main unit. A red LED light should be illuminated on the back of the SNOW STORM when power is “ON”. Make sure that the DMX settings meet your desired criteria (see the DMX section of this manual-the unit should always be operating with settings between 880-899). Also, the LED light on the remote should be illuminated (blinking) if the main power is “ON” and the DMX setting is in the 900s. A constant light will illuminate on the remote if snow is being generated. If the lights are not illuminated, call customer service at 256-229-5551 or the 24 hr tech line at 256-229-5551 Option 2.

b) Is the Pump Operating?

Yes: If you feel the clear plastic tube vibrating, then the pump is operating.

Go to (c)

No: Recheck the DMX settings per the DMX settings in the manual. The unit should always operate and blow snow with settings between 880 and 899.

Contact customer service at 256-229-5551 or 256-229-5551 Option 2.

c) Check to see if the tube is fully submerged in solution and is not pinched. A hole in the hose would require replacement. It sometimes takes up to 2 minutes for the self-priming pump to saturate the nozzle sock with liquid.

d) Set the Rotary Switch between 880 and 899 to prove that the unit operates.

e) Create a new “Solution Mixture”, per the instructions, if the nozzle sock is saturated with liquid but no snow is being made.

2 Is the Snow generated very wet or light in volume? Always allow two minutes or so for the SNOW STORM to come to full operation after an extended storage or for the first time operating.

f) Remake another batch of your recipe solution, and check your water to solution ratio carefully.

g) Make sure the clear tube is completely submerged in the solution.

h) Contact customer service at 256-229-5551, or the 24 hr tech line at 256-229-5551 Option 2.

3 Technical Service or Purchasing Global Special Effects™ Liquid Solutions:
Use customer service at 256-229-5551

4 The fan is not turning on. The fan has its own controller on the back of the machine.

24 Hour Technical Service - Off Hours 256-229-5551 Option 2

What is Evaporative Snow™

Incorporating Evaporative Snow™ In Your Production Design

Global Special Effects is a pioneer of the “evaporative snow” process. In order to help you incorporate “evaporative snow” in your production design, we are providing you the following explanation as to exactly what it is and how a snow machine works.

The “snow flake” starts as a clear fluid in a reservoir or bottle usually found at the back of the machine. A small plastic feed tube takes the fluid from the reservoir to a small nylon sock at the front of the machine by means of a pump. The sock is mounted to the front end of a high output blower. The sock material is a very fine mesh weave and acts like hundreds of very tiny bubble wands, producing clusters of bubbles appearing as “flakes”. The “flake” size varies according to the speed of the pump, and the amount of fluid reaching the sock. More fluid results in more and larger clusters of bubbles or “flakes”.

The “flake” size is the key to making any evaporative snow truly evaporative and residue free. Ideally you want to set the flake size so that the snow evaporates just as the snow hits the ground. Imagine for a moment blowing a traditional soap and water bubble with a bubble wand. The air pressure in the bubble is greater than the surrounding air pressure, and keeps the bubble inflated, much like a latex balloon. As air currents keep it aloft, it will remain intact until enough water evaporates from it’s surface, the thinned film can no longer maintain surface cohesion and the bubble’s internal air pressure causes it to burst. Evaporative snow fluid contains an advanced evaporative solution to make the “flakes” disintegrate more rapidly. The combination of air pressure and solution mixture produces a very esthetically pleasing, moderate snow fall. While you can certainly create a blizzard effect with these machines, additional safety precautions must be considered, as the snow will build up on the floor or stage, resulting in a slippery surface.

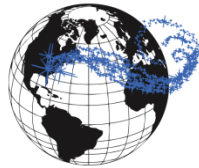
Air flow and evaporative snow in your production design. First, all snow machines produce a “cone” of snow which is smallest near the machine and disperses as you get farther away creating a “curtain effect” (see the Overhead View diagram next page). You can increase the overall effected area through the use of judiciously placed fans, both near the machine and on the ground. Fans near the machine (some larger machines have these incorporated into their design) will help disperse the snow into a larger area. Fans on the ground will also help with dispersion, as well as provide beautiful updrafts and swirls. Often these machines are used in ballrooms for holiday parties and occasionally in arenas. The key to coverage in a larger venue (or when you want to make it snow on the audience at a theatre) is not determined as much by the number of machines as it is by the air handler’s circulation in the room itself. Air handlers in arenas and many modern ballroom facilities are designed to re-circulate thousands of cubic feet of air per minute. Experiment with air handler’s currents to circulate snow around the venue. Staggering the placement and alternating the direction of the snow machines so that the edges of the air streams from the machines interact in opposing directions is another technique for creating a swirling effect.

Back lighting and to some extent side lighting is vital to the audience’s visual experience. If lit from the front only, the effect’s visibility will be poor at best. Lighting can be especially challenging in a ballroom or other “total environment” setting or venue, when your audience will be viewing the snow from multiple angles and positions. Ideally you want your lighting to come from above, yet below the snow machines. Obscuring the snow machines in the dark above the light sources allows the snow to capture light, adding a sense of wonder to your event.

Noise reduction is another factor to be considered in your production design. To a large extent it can be covered with music. Global Special Effects engineers have developed the quietest snow machines using better sound insulation, and quieter blowers such as the T-1600 Snow Machines series.

Limited Lifetime Warranty

Global Special Effects™ provides a limited lifetime warranty for the SNOW STORM from any manufacturing defects. Any misuse, abuse, or negligence automatically voids our warranty. Running any other liquids/materials other than the Global Special Effects™ solutions through the pump automatically voids our warranty. Global Special Effects™ is not responsible for loss of income, labor, or business as a result of a SNOW STORM's malfunction. Global Special Effects™ is not responsible for physical damage, scratching or tube damage after shipping from Global Special Effects™ Manufacturing facility. For safety reasons, Global Special Effects™ will repair damaged electrical wires per the warranty. There is a lifetime warranty on the circuit board and other electronics to the fan or pump. Direct all questions and claims to the Global Special Effects™ customer service at 256-229-5551 from 8-5 Central time or the 24 hr tech support line at 256-229-5551 Option 2.



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