

# T-5000

## *Mega Evaporative Snow Machine*



**SNOW**  
**M · A · S · T · E · R · S**  
**SPECIAL EFFECTS**

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# WELCOME

## Important Information About your T-5000 Snow Machine

### THE T-5000 Mega Evaporative Snow Machine Manual

*Congratulations on your purchase of this SnowMasters snow machine. With your snow machine you will dazzle and entertain audiences in large or small venues. Your T-5000 snow machine is loaded with advanced features, but at the same time it is very easy to use.*

The T-5000 “Mega Evaporative Snow Machine” 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 out from its nozzle section and creates a realistic snowfall effect without residue or cold air. With its reliable, efficient and low-volume design, the T-5000 is a marvel for stage productions, fancy presentations or unique weddings. The tethered remote and the DMX give the user control over snowflake 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 T-5000 MEGA EVAPORATIVE SNOW MACHINE



The T-5000 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 T-5000 “Mega Evaporative Snow Machine” generates evaporative snow that normally dissipates completely when dispensed from 20-30 ft in the air. Mounting the T-5000 at the specified elevation, relative to the generated flake size is key to creating a “residue free” floor below the snow machine (See Chart 2). A wet floor or incorrectly mounted snow machine could allow a build-up of snow residue. 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 T-5000 without liquid solution or water in the solution bottle. Do not run the T-5000 when the Gallon Solution bottle is holding less than a pint of solution. If you do not follow these directions, the T-5000 can be damaged.

Always mount the T-5000 using the secured span set or chain that is attached to the four pick points or secure it on a flat stable platform. Wrap a safety chain around the yoke brackets for secondary protection.

Never leave the T-5000 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.*

# T-5000 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:	Two Individual 110V 60 Hz Circuits
Current:	Two 15 Amps Circuits
Size:	19" Wide, 30" Long and 23" Tall
Weight:	110lbs
Materials:	Predominately: wood and carpet exterior with steel covers, bracket and hanging hardware.
Color:	Black (other colors are optional)
Snow Solution	1 oz Solution Mixture per minute (approximate)
Usage Rate	or 1 to 1.5 hrs per gallon of solution.
Power Cable Length	7 ft
Tether Length To Remote	24 ft



# Evaporative Snow™ Solution Mixture

## Solution Mixture:

Snow Masters Labs are constantly inventing and reformulating solutions in order to improve the snow from the T-5000 "Mega Evaporative Snow Machine". Please contact Snow Masters at 800-745-8599 for more information. In order to prevent operation problems and observe the Warranty guidelines, always use a Snow Masters 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 T-5000, if the solution bottle does not fit into the well on the T-5000.

## Evaporative Snow Concentrate Solution Only.

The ratio mix for this snow solution is 8 oz of solution per 1 gallon of distilled water. See the chart below (Chart 1) for some examples of common water/solution ratios. Warning: **If you mix water with the standard FG-100 Solution (non-concentrate), you will not be able to generate snow.**

Mix Water and Concentrate Solution as Shown Below:

**Chart 1**

WATER	FG-100 CONCENTRATE		
	Tablespoons or Pints or Fluid Ounces		
½ gallon	8	¼	4
1 gallon	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 T-5000.



# General Operating Instructions

## Operating Instructions:

The T-5000 has some simple instructions that must be followed carefully 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)** Prepare the area you intend to direct your snowfall. Review “Diagram 1” which shows approximate spread of the evaporative snow. Always prepare your snowfall area; making sure it is dry and free of obstructions. Note that if the snowfall surface area is linoleum or smooth, some flakes can create a slippery floor, if the T-5000 is mounted too low (See Chart 2). Always locate the T-5000 in a well-ventilated area. **Never block or cover the intake or nozzle discharge of the T-5000 or the internal Blower can be damaged.**

**2)** Mount the T-5000 on a secure, dry, and level platform. Since the larger the flake sizes are slower to evaporate, Chart 2 recommends DMX or Remote settings to minimize residue on the ground. You can still play with the adjustments to optimize your snow. For safety reasons, the T-5000 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 T-5000 in the rain. The T-5000 is not waterproof. If it gets wet, unplug the snow machine and contact “Snow Masters” technical support.**



**Chart 2**  
**Approximate DMX or Dial Remote Settings**  
 Relative to Mounting Height to Minimize Residue

DMX Setting	or Remote Setting DMX 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.

**3)** If the snow solution is a concentrate, prepare the snow solution in the empty plastic gallon bottle provided (located in the T-5000 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 T-5000 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 T-5000 is self-priming.

# General Operating Instructions

## Operating Instructions:

- 4)** In order to start the T-5000, 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 switch "ON" in the back of the T-5000. 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 back of the T-5000 unit to any number between 900-999. Press "ON" the 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, then 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 T-5000 without the clear tube submerged in the filled solution container.
- 5)** If the solution has drained out of the clear tube during a rest period for the T-5000, it may take a minute or two for the pump to self-prime itself from the solution container liquid.
- 6)** On the tethered remote, a blinking light signifies that the Power is "ON" in the T-5000 unit. A constant light from the LED signifies that the T-5000 is blowing evaporative snow. If the light on the remote is completely off, the T-5000 is not powered up and cannot be controlled from the remote.
- 7)** To turn the power OFF on the T-5000, push down on the red "O" button on the back of the T-5000.

## DMX Settings T-5000 Mega Evaporative Snow Machine

The DMX settings are key to the operation of the T-5000. The three-digit number on back of the T-5000 panel determines the operation mode for the T-5000. Warning: there are DMX settings where the T-5000 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 two fan relays, 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.

<b>*SELECTED START ADDRESS</b>			
	<b>Cycle Time</b>		<b>Flake Size</b>
<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
:	:	:	:
<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

The DMX interface is compliant with DMX-512 standards and electrically isolated to 1000VAC. The start 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 dimmers 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 dimmer is set to one of the Momentary positions (either 5 or 15 min cycle), the Cycle Time and Duration dimmers become active. The cycle time dimmer establishes the time it takes for the entire event. Duration dimmer 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 4 second WAIT. A sneeze is when the blower remains on without the pump and dries the sock, preventing postnasal drip.

located on the back of the device. An 'X' in a position 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.

The following tables show all the settings that can be attained with the use of the three digit rotary switch

**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 on depending 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 on depending 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" the unit will act as it would in the "always on" mode, except now the user may use the flake size knob to control the flake size rather than the rotary switches. The "remote mode" also allows for the use of a quick on/off switch located on the remote control.***



# Maintenance Information and Precautions

## Cleaning and Storing the T-5000 “Mega Evaporative Snow Machine”

In order to clean the T-5000, fill another plastic container ½ full with water and run the T-5000 for 3-5 minutes with the nozzle tilted downward into another container (if possible). You may clean the plastic exterior of the T-5000 with detergent and water. Dry off the T-5000 and store it in a plastic bag and box, if possible. Do not stack other boxes or items on top of the T-5000. Store the T-5000 in a cool, dry environment between 40-80 degrees F. If electrical wires are frayed, contact the factory at 800-745-8599 for service. **Never operate the T-5000 with a frayed electrical wire.**

### Maintenance:

**The T-5000 is a low maintenance unit.**

Caution: Never remove the cover or housing screws on the Snow Machine. This action will nullify the warranty. Contact customer service at 800-745-8599.

General Repair: The T-5000 Snow Machine has a lifetime warranty **and should never require you to disassemble the unit.** Please contact Snow Masters service at 800-745-8599 if you have questions on its operation or warranty.

**Always use SnowMasters™ 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 T-5000 does not generate snow, review the following checklist.

**a)** When turned “ON”, is the Fan Operating? (Air is shooting out the nozzle of the T-5000).

**Yes:** Move on to (b)

**No:** Check the electric plug interface to the outlet connection and make sure the remote connector is connected to the main unit. Then, check to see if the power switch is “ON” on the main unit. A red LED light should be illuminating on the back of the T-5000 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 illuminating (blinking) if the main power is “ON” in the T-5000 and the DMX setting are in the 900s. A constant light will illuminate on the remote if snow is being generated. If the lights are not illuminating, call customer service at 800-745-8599 or the 24 hr tech line at 888-391-SNOW.

**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 800-745-8599 or 888-391 SNOW.**

**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 DMX 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 T-5000 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 800-745-8599, or call the 24 hr tech line at 888-391-SNOW.

**3** Technical Service or Purchasing SnowMasters™ Liquid Solutions:  
Use customer service at 800-745-8599

**24 Hour Technical Service - Off Hours 888-391-SNOW (7669)**

# What is Evaporative Snow™

## Incorporating Evaporative Snow™ In Your Production Design

**SnowMasters 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. SnowMasters 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

Snow Masters provides a limited lifetime warranty for the T-5000 Mega Evaporative Snow Machine any manufacturing defects. Any misuse, abuse, or negligence automatically voids our warranty. Running any other liquids/materials other than *distilled* water and the Snow Masters' solutions through the pump automatically voids our warranty. Snow Masters is not responsible for loss of income, labor, or business as a result of a T-5000's malfunction. Snow Masters is not responsible for physical damage, scratching, tube damage, after shipping from Snow Masters' Manufacturing facility. For safety reasons, Snow Masters 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 Snow Masters customer service at 800-745-8599 from 8-5 Central time or the 24 hr tech support line at 888-391-SNOW.



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