HEATIZON
SYSTEMS

RADIANT HEATING SYSTEMS

- **SNOW MELTING**
- FLOOR WARMING
- SPACE HEATING
- ROOF DEICING
- GUTTER DEICING

SnowMeltz

Installation & Operating Manual

Warranty Registration

Heatizon Systems is glad to offer product phone support for the SnowMeltz® product. It is VERY important to have read this manual first. Please have your resistance test numbers and system model name/number available BEFORE calling for technical support.

The SnowMeltz® Heating Cable comes in pre-established lengths that have been designed to deliver a specified heat density. Therefore, it is essential that all of the SnowMeltz® Heating Element contained in the kit be installed. ***Do not cut or alter the heating cable in any way***.

In order to minimize the risk of damage to the SnowMeltz® Heating Cable, Heatizon Systems recommends that the SnowMeltz® Cable be installed immediately prior to the installation of the cementitious material that it is embedded in.

Never cross the SnowMeltz® Heating Cable over itself or any other conductor or wire and always embed the heating cable and connection to cold leads.

When installing Heatizon Systems products, strict compliance with the National Electrical Code, Canadian Electrical Code, Local Building Codes, and Heatizon's Installation Manual is essential.

It is highly recommended to take photographs to document the installed SnowMeltz® for future reference before completing installation.

HEATIZON SYSTEMS

SnowMeltz

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Heatizon Systems
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Concrete Suggestions

Heatizon Systems is not an asphalt, concrete or pavers expert, but we have a few suggestions that you may wish to discuss with your contractor. We make these suggestions in an effort to increase the likelihood that Heatizon Systems' SnowMeltz® will be surrounded by products that are equal to it in both quality and expected longevity. In addition, we make these suggestions in an effort to reduce the possibility that your SnowMeltz® heating element will get damaged or broken by the vertical or horizontal movement of asphalt, concrete, or pavers.

Dry Base: Make certain that the ground below where the new asphalt, concrete or pavers will be located is as dry as possible. It is recommended that it be covered whenever there is a risk of a storm for one to two weeks prior to the pour.

Excavation: Be sure that your excavation is deep enough to accommodate the thickness of the concrete, the thickness of the insulation, the depth of the aggregate base you will have below the concrete and a 1" sand bed if you elect to install the SnowMeltz® below the concrete.

Compaction: Once the excavation is complete, it is highly recommended that a great deal of care be given to completely and properly compact the entire area where the asphalt, concrete or pavers will be located.

Drainage: In order to have proper drainage and to reduce the likelihood of vertical shifting of your asphalt, concrete, or pavers. Heatizon Systems recommends that a minimum of 6 inches of high quality aggregate be laid over the entire area where the asphalt, concrete, or pavers are to be installed, plus one foot around all edges.

Reinforcement: In order to enhance the integrity of your asphalt, concrete or pavers, Heatizon Systems recommends that reinforcement be considered. Most of the time concrete can be reinforced with number 4 gauge welded wire fabric or ½ inch re-bar placed at least 2 inches from the top and bottom surfaces of the concrete.

Insulation: Insulation is a two edged sword. On the one hand, it acts as a good moisture barrier, reduces the response time of your snow melt or heating system, and saves money by reducing operating time. On the other hand, insulation does not allow the heat from the ground to get into the asphalt, concrete, or pavers.

Maximum Area: Heatizon Systems recommends that concrete be poured in square sections no larger than 9.5 feet X 9.5 feet. Pouring other geometric shapes without additional joints almost always results in cracking. Each square must always have a joint on each of its four sides.

Thickness: Heatizon Systems always recommends the following thickness be observed:

Concrete	5 or more inches
Asphalt	4 or more inches
Pavers	4 or less inches

Suggested Mix: Heatizon Systems recommends that a six-bag mix with fiber or steel fibers always be used when pouring concrete.

WARNING: Shock and fire hazard

- If the SnowMeltz® System is damaged or not installed properly, fire or shock could occur resulting in serious personal injuries or damage to property. Carefully follow the warnings and instructions contained in this manual.
- It is important that this equipment is installed only by qualified persons who are familiar with the proper sizing, installation, construction and operation of snow melting systems and the hazards involved.
- The installation must comply with all national and local electrical codes. Consult the authority having jurisdiction familiar with these requirements, either the NEC (National Electric Code), CEC (Canadian Electric Code) should there be any questions.
- The SnowMeltz® System is designed for Concrete, Asphalt, and Sand (paver) exterior heating purposes only. Be sure that the surface will be completed in such a way to not cause mechanical damage to this system in the future.
- If the SnowMeltz® System is damaged, it must be replaced or repaired. To repair or splice any part of the system, use only Heatizon SnowMeltz® Repair Kit (part number SMRPKIT).

1. General Guidelines

1.1 Use of the Manual

This manual describes the SnowMeltz® heating system — how to design the space, select the product, and install the system. It is important to thoroughly review this manual relay or contactor panel instructions, and the Activator Installation and Operation Manual prior to installation:

For additional information regarding any aspect of the SnowMeltz® System, contact:

Heatizon Systems
4137 South 500 West
Murray, UT 84123 USA
Tel: 888-239-1232
Tel: 801-293-1232
Fax: 801-293-3077
info@heatizon.com
heatizon.com

1.2 Safety Guidelines

The safety and reliability of any snow melting system depends on proper design, installation, and testing. Incorrect installation or mishandling of the product can cause damage to the heating cable, system components and property, and can create a risk of fire or shock. The guidelines and instructions contained in this guide are important. Follow them carefully to minimize these risks and to ensure that the SnowMeltz® System performs as designed.

Pay special attention to the following:

- **Instructions Marked:** 

- **Safety Warnings:** 

DO NOT CUT THE HEATING CABLE!

The SnowMeltz® Mat/Cable systems are engineered to achieve specific heat output for the square footage to which they are designed. Cutting the heating cable to fit a space is extremely dangerous and can result in a fire. Do not cut the heating cable to avoid an obstacle, use other methods as described in this manual. Make sure to avoid damaging/ cutting the heating cable during/ after the installation of the substrate by being aware of all heating cable locations.

Consult the TROUBLESHOOTING section of the installation manual in the event that the cable is damaged or cut by accident.

DO NOT POWER ON!

SNOWMELTZ systems MUST be completely embedded in Concrete/Asphalt/Sand Bed BEFORE powering on. The embedding material MUST cover all of the heating element, BOTH connection points (end and transistion between heating element and cold lead), and be completely cured before powering on. DO NOT power on the SNOWMELTZ system in open air for testing, drying/curing, (or any) purpose, this is an EXTREME FIRE DANGER. For testing, please follow the testing procedures in this manual.

NOTE: SNOWMELTZ systems that have been powered on in open air are unrepairable and warranties are void.

1.3 Remember to Measure Resistance

The resistance between the two conductor wires must be measured. Compare this resistance reading to the "Total Ohms" column in Product section 4.1 for SnowMeltz® Mats. The value should be within ±10%. Also measure the resistance between each of the two conductors and the shielding/ground wire. Both should read infinity or open. If there are different than expected readings for any of these measurements are observed, contact Heatizon Systems at 888-239-1232. Please refer to Section 5 (Required Tests) for instructions on how to measure the resistance.

NOTE:

Important: measure the resistance four times during the installation process
Remember to always measure, verify and record the actual resistance throughout the installation process (out of the box, after installation, after covering with substrate material, and prior to connecting the activator/panel).

1.4 Limited Warranty

For a period of ten (10) years and while in possession of the original owner, Heatizon warrants that the SnowMeltz® heating cable is free from defects in material, design and workmanship. The warranty is only valid if the warranty certificate has been properly completed, and the installation is in accordance with the installation instructions.

2. SnowMeltz® System

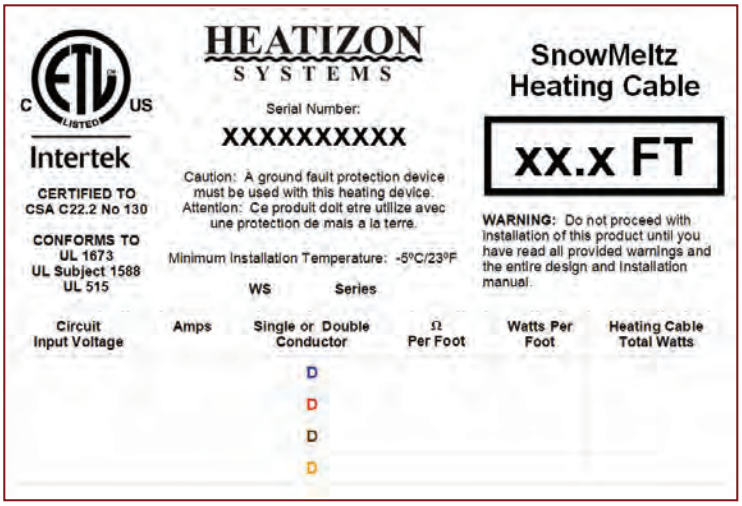
2.1 SnowMeltz® Specifications & Electrical Connections

	MATS
Cable Construction	Twin Conductor
Rated Voltage	120VAC to 277VAC
Output	12 watts/ft max.
Length	Refer to Individual Product Labels
Cable Diameter	0.24" to 0.35"
Cable Type	Constant Wattage
Conductor Insulation	Fluoropolymer
Outer Insulation	Cross-Linked XLPE
Protective Screen	Tinned Copper
Outer Jacket	Cross-Linked Halogen Free Fire Retardant Polyolefin with UV Protection
Heating Endurance	-22°F(-30°C) to 194°F(90C)
Short Term Heating Endurance for Asphalt	464°F(240°C) not to exceed 30 minutes
Minimum Spacing	2"
Standard Spacing	3" to 6"
Cap Thickness	2" to 4" max
Bending Radius	6D** (approx. 2")
Thermal Resistance	464°F(240°C) Do not to exceed 30 minutes

120V and 277V Connection	
PHASE	Copper Element (Cold Lead)
NEUTRAL	Copper Element (Cold Lead)
GROUND	Shield Braid (Cold Lead)

208V, 240V and 480V Connection	
PHASE	Copper Element (Cold Lead)
NEUTRAL	Copper Element (Cold Lead)
GROUND	Shield Braid (Cold Lead)

2.2 Product Labeling



SnowMeltz® Labels on mat include the following information:

- Listing information
- Serial number
- Size of mat
- Allowable voltages for product
- Amps at selected voltage
- Ohms of cable
- Total Watts generated
- Number of conductors
- Watts per foot (at voltage)

2.3 Pre-Installation Notes

NOTE:

- It is important that heating cable be installed only by qualified persons who are familiar with the proper sizing, installation, construction and operation of snow melting systems and the hazards involved. Heating cable products are designed for in and under concrete, asphalt, and paver snow melt applications.
- Article 426 of the NEC requires ground fault protection for line voltage equipment embedded in a noncombustible medium. Check local building codes and regulations for ground fault protection device (i.e. GFCI, GFEP, etc.) requirements when installing all heating cable products.
- Do not bend heating cable within 3" of a termination or connection between the heating element and the cold lead. Heating cables cannot cross or touch one another.
- Article 426 of the NEC limits embedded deicing and snow melting equipment to a maximum of 1300 watts/m^2 (120 watts/ft^2) of heated area.
- Store the heating cable in a dry place up to the endurance temperature of the jacket 194°F (90°C).
- Minimum installation temperature is 23°F (-5°C).
- Read the instructions carefully before installing SnowMeltz® system.
- Remember to measure the resistance four times.
- The heating cable cannot be cut to length, crossed over itself, or installed too close to itself.
- Remember to check that the supply voltage matches the voltage of the SnowMeltz® system.
- Remember to place the labels as written in this instruction.
- Only for outdoor installation, not for roofs.

Please consult Heatizon Systems for any other questions. 1-888-239-1232

3. SnowMeltz® Installation Design

3.1 Gathering Site Information

- Size and layout of area - Be sure to properly measure the area to be installed to ensure the proper sized SnowMeltz® system has been purchased. Also plan how power will be run to the area and/or connected to the cold lead(s).
- Geographic Location - Depending on the geographic location of the installation area, some adjustments may have to be made during the installation, such as: layout configuration, drainage, heat output, obstacles, etc.
- Cover or cap material and thickness (1.5" minimum) - SnowMeltz® MUST be embedded in either concrete, asphalt, or sand underneath pavers, ensure the system is at least 1.5 inches from surface.

3.2 Determine the Voltage and Amperage

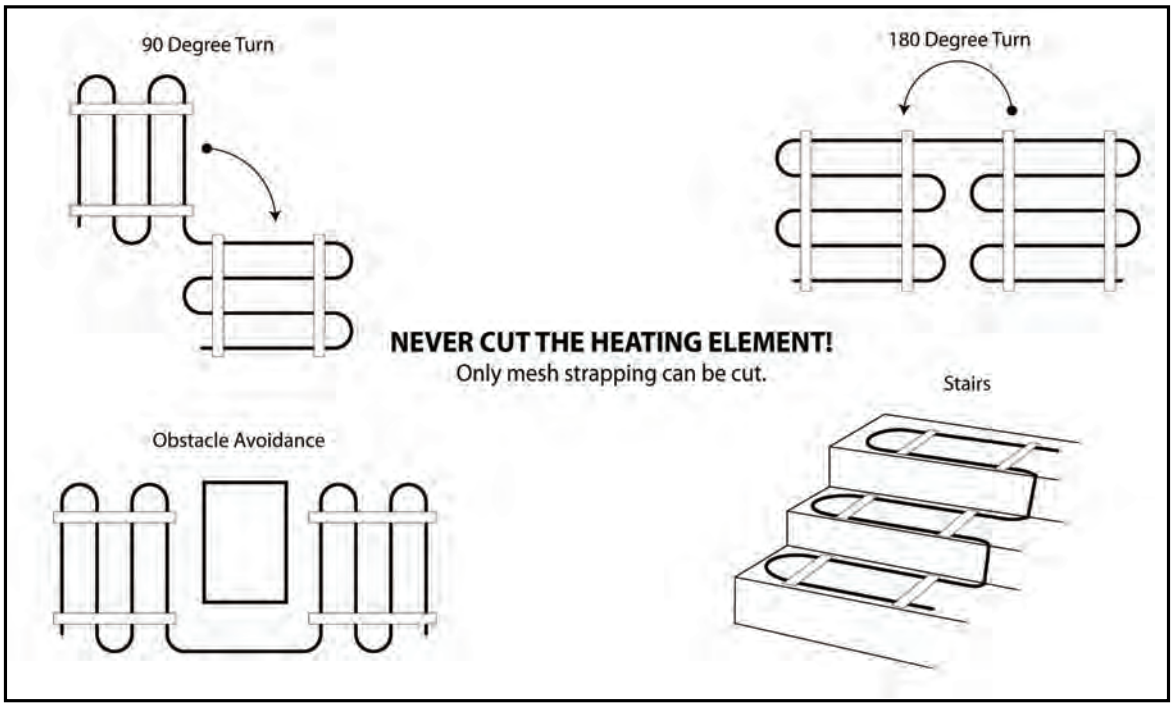
The available supply voltages include 208V, 240V, and 277V. Ensure based on the voltage and size of system(s) being used, that the circuits have been sized properly.

Important: Operating SnowMeltz® at improper design voltages will damage the system and void the warranty.

Breaker Size (Amps)	Max Load (Amps)
50	40
40	32
30	24
20	16
15	12

3.3 Plan the design*

Determine the optimum SnowMeltz® Mat layout for the heated area to ensure coverage. Determine where the cold lead (20 foot) will join to a junction box, panel, or activation device. When installing multiple systems, be sure to plan layout for multiple cold leads being run to the same location. Use included grid (back of the manual) to layout the SnowMeltz® system(s).



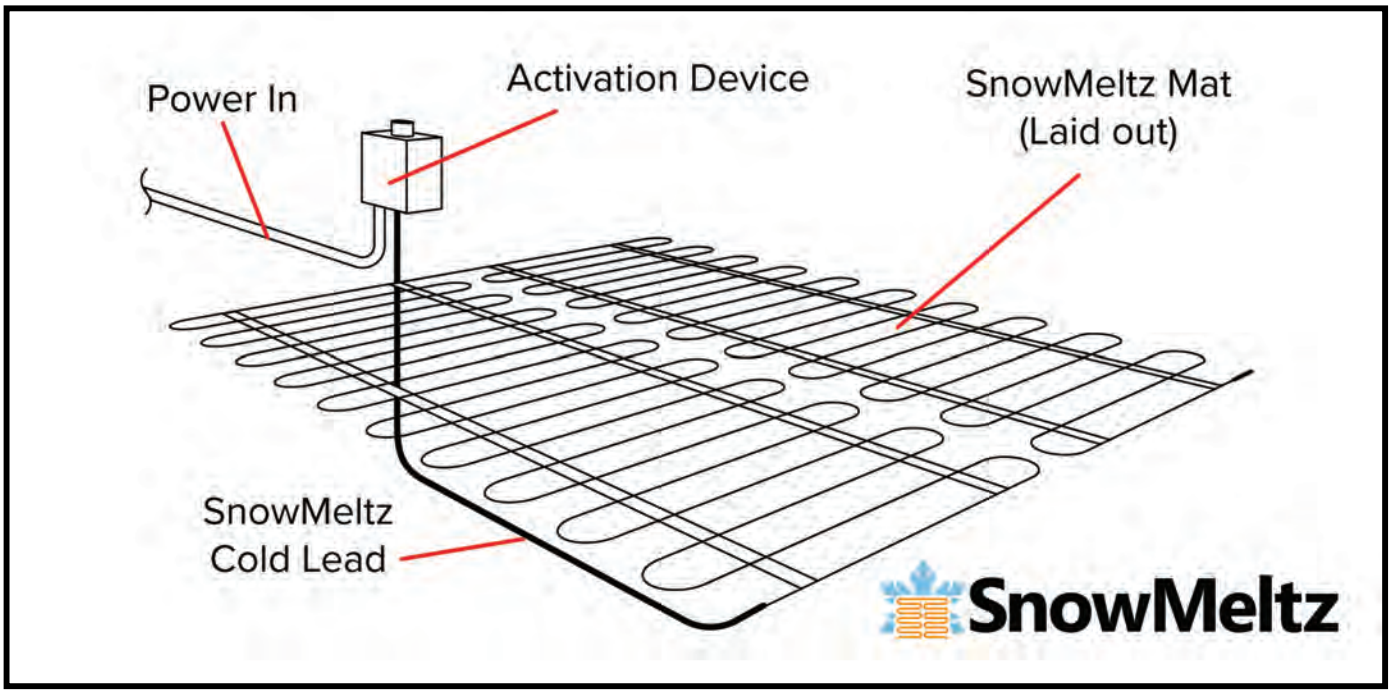
NOTE:

- Make certain to plan for the movement of water created by melted snow.
- The transition joint between the heating element and the cold lead must be embedded in asphalt, concrete, sand, stone dust, or cementitious material. Do not bend the heating cable within 3" of cold connection.
- Activation Devices are the eyes and ears of the heating system. Location is important. Please reference installation and operation information in the activation device product literature. Some activation devices may or may not require a different voltage than the heating cable.

3.4 Single Mat Configurations

If using a single SnowMeltz mat, the Cold Lead will be ran back to either activation device, or a contactor/relay panel. In the case of a exterior activation device, ensure the activation device is located where the cold lead can reach back to that device for wiring, or provide a junction box.

For instances where the SnowMeltz cold lead is unable to reach to the activation device, or to the location of a contactor/relay panel, an appropriate junction box should be used. Consult local code for gauge of cable to be used and type of junction box for the location (exterior/interior, etc.)



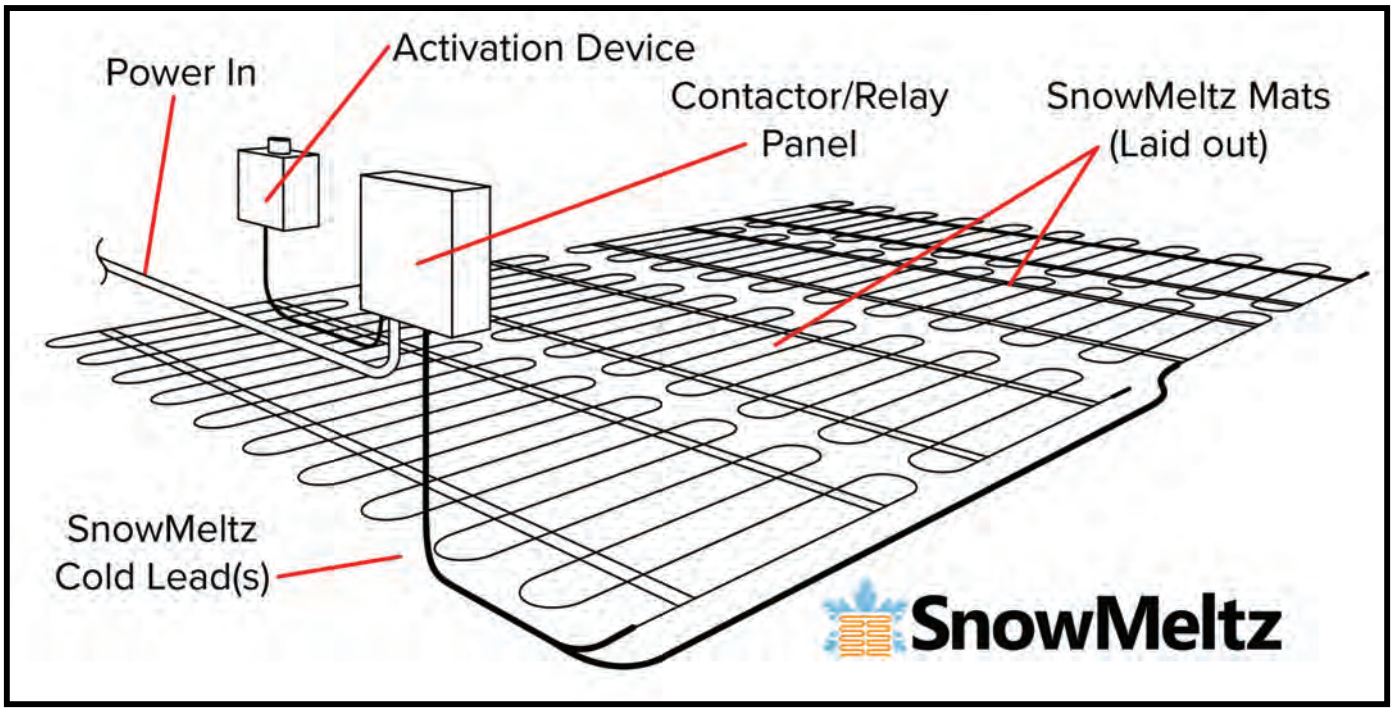
3.5 Multiple Mat Configurations

If using a multiple SnowMeltz mats, the Cold Leads will be ran back to either activation device, or a contactor/relay panel. In the case of a exterior activation device, ensure the activation device is located where the cold leads can reach back to that device for wiring.

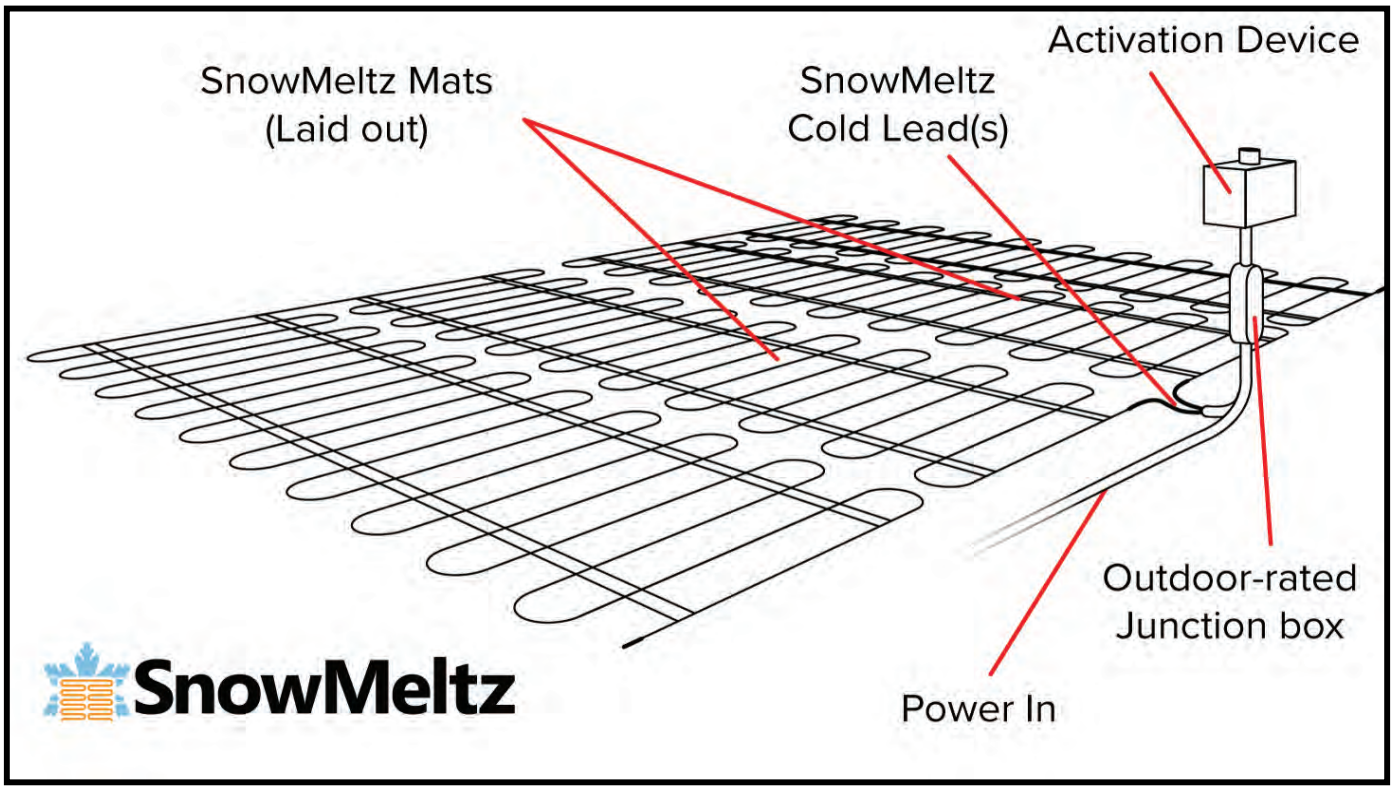
For instances where multiple mats are less than 30 total amps (combined), then the M326A/M326ARS can be used to switch the load of the connected SnowMeltz mats. Using an appropriate sized circuit breaker, follow all local codes for providing power to an outdoor-rated junction box below the activation device.

Multiple Mat Configurations - Panel

When using a contactor or relay panel and multiple mats, ensure that an outdoor-rated junction box is used to connect the SnowMeltz mats to power from the contactor/relay box.



Multiple Mat Configurations - No Panel

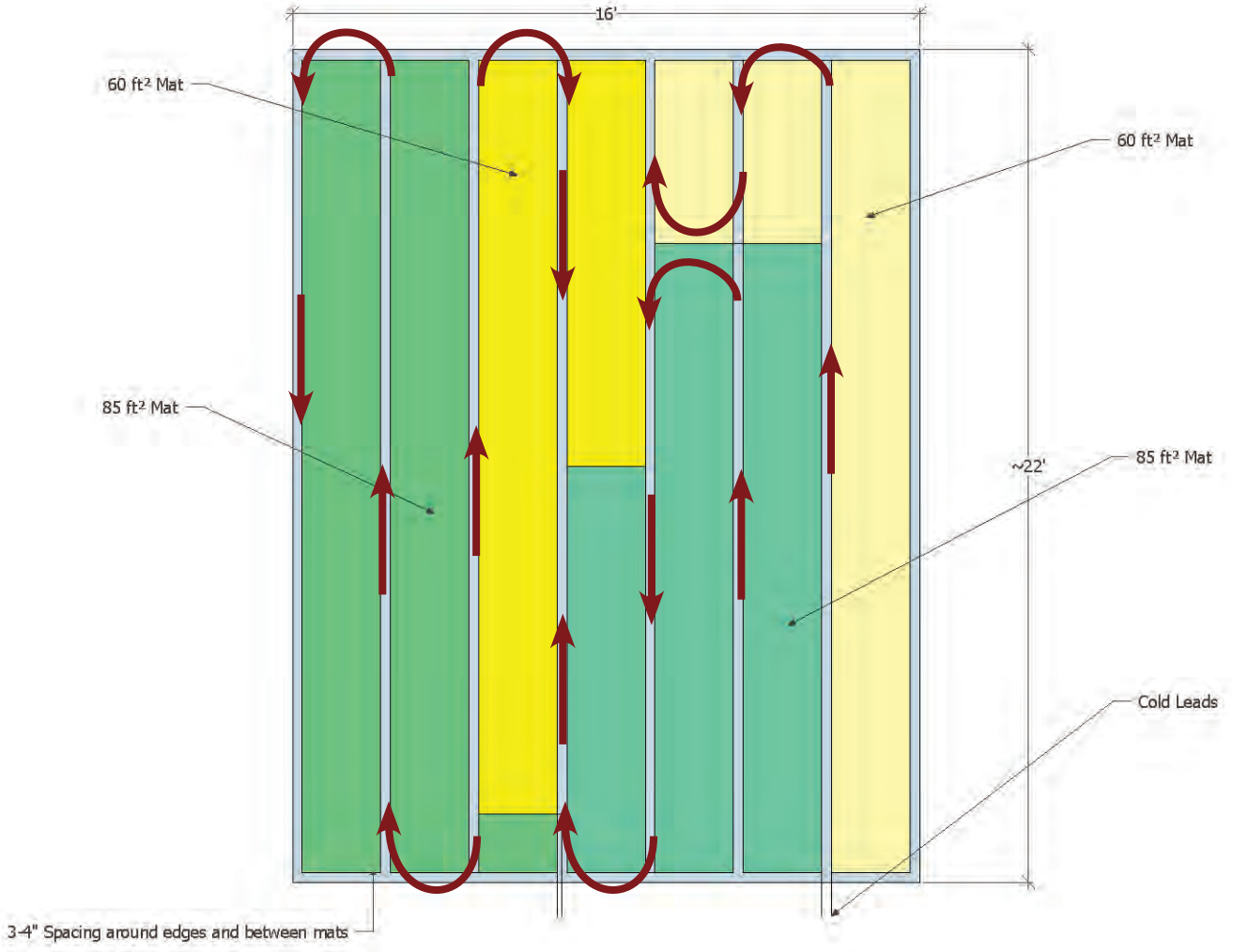


3.6 SnowMeltz Expanded Layouts

Laying out SnowMeltz using multiple mats follow the following rules:

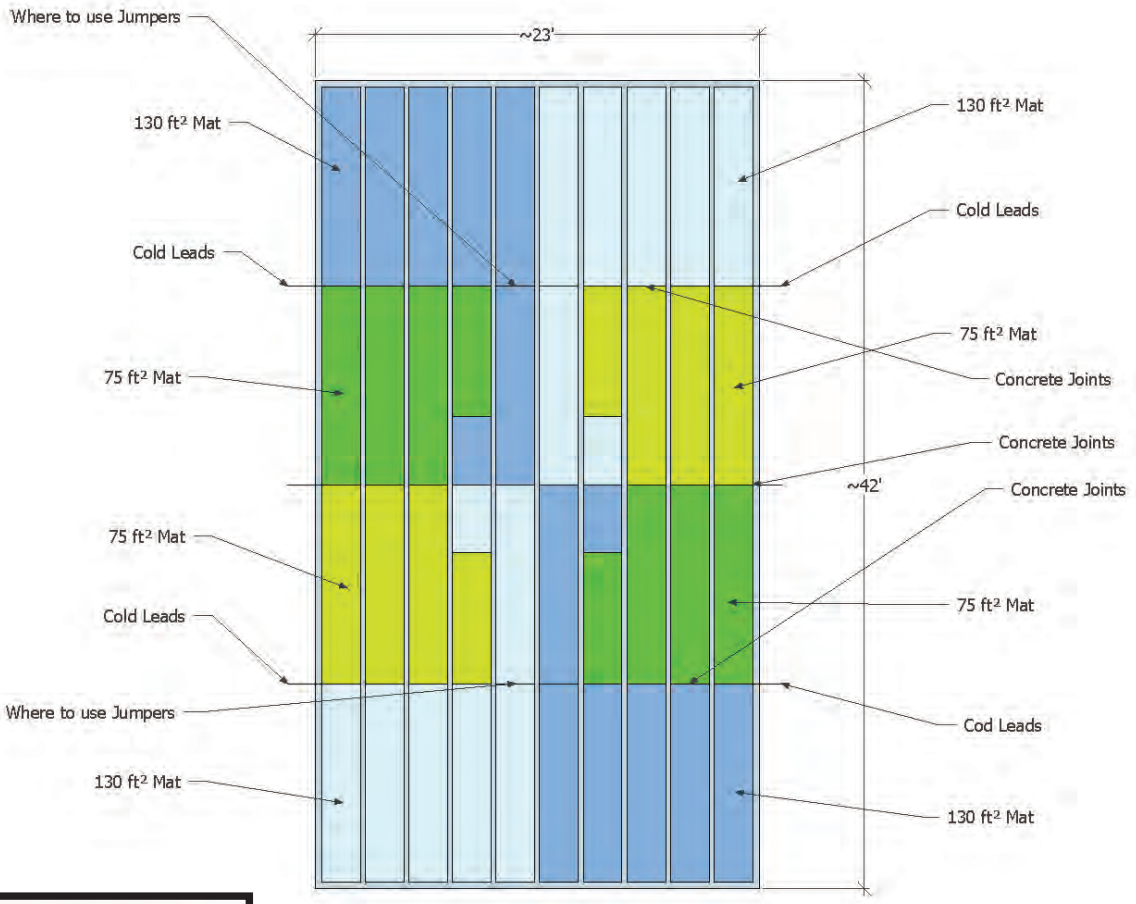
- SnowMeltz CANNOT overlap any other SnowMeltz cold lead, heating element.
- Maintain at least 3 inch spacing between mats and cold leads.
- Spacing mats greater than 5 inches may cause striping (areas of delayed snow/ice melting).
- Mark all control joint locations before doing layout.
- Find appropriate location(s) for contactor* and/or activator.
- Mark tentative location(s) for junction box(es) and activator.
- Layout mats BEFORE applying the substrate. Do not install them at the same time.
- Plan layouts with any/all joints in mind in order to minimize crossing those joints.
- Follow ALL instructions outlined in the primary SnowMeltz instruction manual for installing SnowMeltz mats.

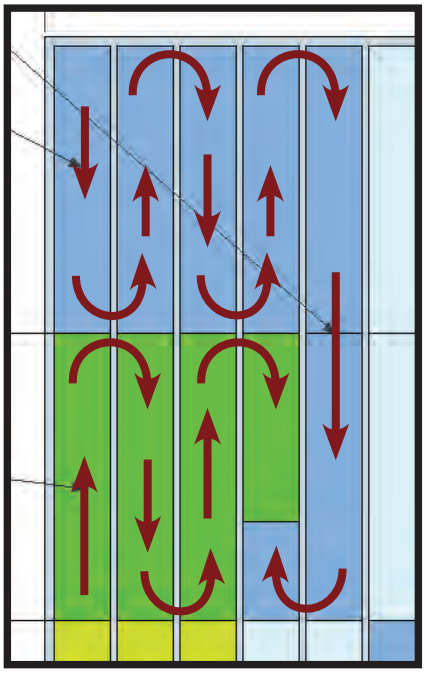
Here are a couple example layouts with the large and jumbo SnowMeltz kits:



Using the SnowMeltz 290 kit (SM-50W277-37W240-290) to fill a space that is approximately 330 square feet, with 3 inch spacing around the perimeter and between mats. This example has no control joints, therefore no jumpers would be used. All the cold leads would meet the incoming power at the activator device (M326ARS-2Z), where all the electrical connections would be made.

Using the SnowMeltz 820 kit (SM-50W277-37W240-820) to fill a space that is approximately 950 square feet, with 4 inch spacing around the perimeter and between mats. This example has control joints about every 10-11 feet. The mats have been laid out to minimize the number of jumpers required. As you can see, the mats are arranged similarly in four quadrants. See the diagram below for mat routing in each quadrant.





This example would require feeders to each side to junction boxes on either size of the space. These feeder lines should be based on National Electric Code and local codes to carry the appropriate amp load and number of circuits. Any/all junction boxes used should be outdoor-rated.

This example uses 1-130 square foot mat and 1-75 square foot mat in each quadrant, with the 130 square foot mat being the one that crosses the horizontal control joint. This is the point where a jumper would be used to protect the SnowMeltz cable from any potential cracking/physical damage. No vertical control joints are needed to be crossed in this example. Be sure to read and follow all installation instructions regarding joints in the primary SnowMeltz manual (SEE: "A Few Concrete Suggestions").

4.1. Product Selection - Standard Configurations

Since SnowMeltz CANNOT be shortened, it is vital to choose the correct size system before installing. It is advisable to always get a smaller system for the area, for example: if the area is 48 square feet, choose a 40 or 45 square foot system, to account for spacing between mats and slab perimeter.

SnowMeltz® Mat, 50 Watts/Ft2 @ 208 VAC

Heatizon Part Number	Total Watts	Total Ohms	Amps @ 208V	Watts/ Sqft 208V	Watts/Ft	Coverage Area/Square Foot	Watts/ Square Foot	Mat Length	Mat Width	Cold Lead Length/ AWG
SM-50W208-10	520	**120.0**	2.5	50	12	10	50	5′	24″	20′/14
SM-50W208-15	825	**80.0**	4.0			15		7.5′		20′/14
SM-50W208-25	1235	**60.0**	5.9			25		12.5′		20′/14
SM-50W208-35	1745	**48.0**	8.4			35		17.5′		20′/14
SM-50W208-45	2245	**40.0**	10.8			45		22.5′		20′/14
SM-50W208-60	2995	**34.3**	14.4			60		30′		20′/14
SM-50W208-75	3680	**11.8**	17.7			75		37.5′		20′/10
SM-50W208-100	4740	**9.1**	22.8			100		50′		20′/10

SnowMeltz® Mat Models - 50 Watts/Ft2 @ 240VAC or 37 Watts/Ft2 @208VAC

Heatizon Part Number	Total Watts	Total Ohms	Amps @ 240V	Watts/ Sqft 240V	Watts/Ft	Amps @ 208V	Watts/ Sqft 208V	Coverage Area/Square Foot	Mat Length	Mat Width	Cold Lead Length/ AWG
SM-50W240-37W208-15	775	**120.0**	3.2	50	12	2.8	37	15	8′	24″	20′/14
SM-50W240-37W208-20	950	**80.0**	4.0			3.4		20	10′		20′/14
SM-50W240-37W208-30	1425	**60.0**	5.9			5.1		30	15′		20′/14
SM-50W240-37W208-35	1840	**48.0**	7.7			6.6		35	18′		20′/14
SM-50W240-37W208-45	2215	**40.0**	9.2			8.0		45	22′		20′/14
SM-50W240-37W208-60	3015	**34.3**	12.6			10.9		60	30′		20′/14
SM-50W240-37W208-75	3660	**30.0**	15.3			13.2		75	37′		20′/10
SM-50W240-37W208-110	5500	**9.1**	22.9			19.9		110	55′		20′/10

SnowMeltz® Mat Models - 50 Watts/Ft2 @ 277VAC or 37 Watts/Ft2 @240VAC*

Heatizon Part Number	Total Watts	Total Ohms	Amps @ 277V	Watts/ Sqft 277V	Watts/Ft	Amps @ 240V	Watts/ Sqft 240V	Coverage Area/Square Foot	Mat Length	Mat Width	Cold Lead Length/ AWG
SM-50W277-37W240-10	426	**180.1**	1.5	50	12	1	37	10	4′	24″	20′/14
SM-50W277-37W240-15	712	**107.8**	2.6			2		15	7′		20′/14
SM-50W277-37W240-20	1100	**69.8**	4.0			3		20	10′		20′/14
SM-50W277-37W240-25	1250	**61.4**	4.5			4		25	13′		20′/14
SM-50W277-37W240-35	1650	**46.5**	6.0			5		35	17′		20′/14
SM-50W277-37W240-40	2050	**37.4**	7.4			6		40	21′		20′/14
SM-50W277-37W240-45	2250	**34.1**	8.1			7		45	23′		20′/14
SM-50W277-37W240-50	2500	**30.7**	9.0			8		50	25′		20′/14
SM-50W277-37W240-60	2995	**25.6**	10.8			9		60	30′		20′/14
SM-50W277-37W240-75	3610	**21.3**	13.0			11		75	37′		20′/14
SM-50W277-37W240-85	4210	**18.2**	15.2			13		85	43′		20′/10
SM-50W277-37W240-100	4900	**15.7**	17.7			15		100	50′		20′/10
SM-50W277-37W240-130	6350	**12.1**	22.9			20		130	65′		20′/10

* These SnowMeltz mats are also available as single-mat, pre-made kits for sale through online retailers, configured to run at 240VAC. Kits come complete with mat, M326A activator, and jumpers.

4.2. Product Selection (continued) - Multiple Mat Kits

SnowMeltz Kits available through various online retailers and distributors are available in several sizes, but are also available as a two mat configuration. These kits are controlled and activated by a single M326A activation device, switching a maximum of 30 full load amps.

SnowMeltz® Dual-Mat Kit Models - 37 Watts/Ft2 @240VAC

Heatizon Part Number	Total Watts (240V)	Watts/Ft	Amps @ 240V	Breaker Size	Watts/ Sqft 240V	Coverage Area/Square Foot	Mat Lengths	Mat Width	Cold Lead Lengths/ AWG
SM-50W277-37W240-110-KIT	4070	12	17	30	37	110	25′/30′	24″	20′/14
SM-50W277-37W240-120-KIT	4440		19	30		120	30′/30′		20′/14
SM-50W277-37W240-135-KIT	4995		21	30		135	37′/30′		20′/14
SM-50W277-37W240-145-KIT	5365		22.4	30		145	43′/30′		20′/14
SM-50W277-37W240-150-KIT	5550		23.1	30		150	37′/37′		20′/14
SM-50W277-37W240-160-KIT	5920		24.7	40		160	43′/37′		20′/14
SM-50W277-37W240-170-KIT	6290		26.2	40		170	43′/43′		20′/14
SM-50W277-37W240-185-KIT	6845		28.5	40		185	50′/43′		20′/14

SnowMeltz Kits come standard with the SnowMeltz mat(s), M326A activation device and the appropriate number of joint jumpers (MICABJMPKIT). The kits are designed to use either a 30 or 40 amp circuit and do not require a relay/contactor panel. Follow all local codes wiring/installation of the SnowMeltz Kits.

4.3. Expanded (Large) Kit Sizes

Large expanded SnowMeltz kits are designed to run using 2 dedicated, Ground Fault protected circuits (required), either 20, 30 or 40 amp (240VAC) depending on area size.

SnowMeltz® Large Kits - 37 Watts/Ft2 @240VAC - Dual Circuits

Heatizon Part Number	Total Watts	Included Mats and Quantity	Total Amps @ 240V	Circuits/ Sizes	Watts/ Sqft 240V	Coverage Area/Square Foot	Mat Lengths	Mat Widths	Cold Lead Lengths/ AWG
SM-50W277-37W240-200	7400	SM-50W277-37W240-100(x2)	30	2x 20A	37	200	50′	24″	20′/10
SM-50W277-37W240-220	8140	SM-50W277-37W240-50(x2)	34	2x 30A		220	25′		20′/14
		SM-50W277-37W240-60(x2)					30′		20′/14
SM-50W277-37W240-240	8880	SM-50W277-37W240-60(x4)	37	2x 30A		240	30′		20′/14
SM-50W277-37W240-270	9990	SM-50W277-37W240-60(x2)	42	2x 30A		270	30′		20′/14
		SM-50W277-37W240-75(x2)					37′		20′/14
SM-50W277-37W240-290	10730	SM-50W277-37W240-60(x2)	45	2x 30A		290	30′		20′/14
		SM-50W277-37W240-85(x2)					43′		20′/10
SM-50W277-37W240-300	11100	SM-50W277-37W240-75(x4)	46	2x 30A		300	37′		20′/14
SM-50W277-37W240-320	11840	SM-50W277-37W240-75(x2)	49	2x 40A		320	37′		20′/14
		SM-50W277-37W240-85(x2)					43′		20′/10
SM-50W277-37W240-340	12580	SM-50W277-37W240-85(x4)	52	2x 40A		340	43′		20′/10
SM-50W277-37W240-370	13690	SM-50W277-37W240-85(x2)	57	2x 40A		370	43′		20′/10
		SM-50W277-37W240-100(x2)					50′		20′/10
SM-50W277-37W240-380	14060	SM-50W277-37W240-60(x2)	59	2x 40A		380	30′		20′/14
		SM-50W277-37W240-130(x2)					65′		20′/10

Kits come with the following components (see list above for specifics):

- SnowMeltz Mats
- Jumper kits
- Activator (M326ARS-2Z)
- Manuals

4.3. Product Selection (continued) - Expanded (Large) Kits

SnowMeltz Expanded System Circuit Design

In order to ensure proper load balancing on circuits, the SnowMeltz expanded kits have been designed to use combinations of mats on specific circuits:

SnowMeltz® Large Kits - 37 Watts/Ft2 @240VAC - Dual Circuits

Heatizon Part Number	Circuit Number/ Amperage	Mats	Amps Per Mat @ 240V	Amps Per Circuit @ 240V	Mat(s) Square Footage	Mat Lengths
SM-50W277-37W240-200	1 - 20A	SM-50W277-37W240-100	15	15	100	50′
	2 - 20A	SM-50W277-37W240-100	15	15	100	50′
SM-50W277-37W240-220	1 - 30A	SM-50W277-37W240-50	7.7	17	50	25′
		SM-50W277-37W240-60	9.3		60	30′
	2 - 30A	SM-50W277-37W240-50	7.7	17	50	25′
		SM-50W277-37W240-60	9.3		60	30′
SM-50W277-37W240-240	1 - 30A	SM-50W277-37W240-60(x2)	9.3	19	60	30′
	2 - 30A	SM-50W277-37W240-60(x2)	9.3	19	60	30′
SM-50W277-37W240-270	1 - 30A	SM-50W277-37W240-60	9.3	21	60	30′
		SM-50W277-37W240-75	11.6		75	37′
	2 - 30A	SM-50W277-37W240-60	9.3	21	60	30′
		SM-50W277-37W240-75	11.6		75	37′
SM-50W277-37W240-290	1 - 30A	SM-50W277-37W240-60	9.3	22	60	30′
		SM-50W277-37W240-85	13.1		85	43′
	2 - 30A	SM-50W277-37W240-60	9.3	22	60	30′
		SM-50W277-37W240-85	13.1		85	43′
SM-50W277-37W240-300	1 - 30A	SM-50W277-37W240-75(x2)	11.6	23	75	37′
	2 - 30A	SM-50W277-37W240-75(x2)	11.6	23	75	37′
SM-50W277-37W240-320	1 - 40A	SM-50W277-37W240-75	11.6	25	75	37′
		SM-50W277-37W240-85	13.1		85	43′
	2 - 40A	SM-50W277-37W240-75	11.6	25	75	37′
		SM-50W277-37W240-85	13.1		85	43′
SM-50W277-37W240-340	1 - 40A	SM-50W277-37W240-85(x2)	13.1	26	85	43′
	2 - 40A	SM-50W277-37W240-85(x2)	13.1	26	85	43′
SM-50W277-37W240-370	1 - 40A	SM-50W277-37W240-85	13.1	29	85	43′
		SM-50W277-37W240-100	15.4		100	50′
	2 - 40A	SM-50W277-37W240-85	13.1	29	85	43′
		SM-50W277-37W240-100	15.4		100	50′
SM-50W277-37W240-380	1 - 40A	SM-50W277-37W240-60	9.3	30	60	30′
		SM-50W277-37W240-130	20		130	65′
	2 - 40A	SM-50W277-37W240-60	9.3	30	60	30′
		SM-50W277-37W240-130	20		130	65′

SnowMeltz System Circuit Design (ALTERNATE CONFIGURATIONS)

In some cases, you may recieve an alternate configuration of the Standard - multiple mats or the large kits. The total square footage will remain the same as will total wattage output, however the mats will be different.
For Standard - Multiple Mat kits, everything will still run to the 30 or 40 amp circuit required per the original requirements.
The large kits with alternate confgurations, the rule is to pair up a smaller mat with a larger mat on one circuit, then doing the same on the other circuit. Never pair up two (or more) large mats on a single circuit in the dual-circuit configurations. Always ensure proper load balancing on two or more circuits.

4.4. Product Selection (continued) - Jumbo Kits

Expanded (Jumbo) Kit Sizes

Jumbo expanded SnowMeltz kits are designed to run using multiple dedicated circuits, all (240VAC) depending on area size.

SnowMeltz® Jumbo Kits - 37 Watts/Ft2 @240VAC - Multiple Circuits

Heatizon Part Number	Total Watts	Included Mats and Quantity	Total Amps @ 240V	Circuits/ Sizes	Watts/ Sqft 240V	Coverage Area/Square Foot	Mat Lengths	Mat Widths	Cold Lead Lengths/ AWG
SM-50W277-37W240-410	15170	SM-50W277-37W240-75(x2)	64	2x 40A	37	410	37.5	24"	20'/14
		SM-50W277-37W240-130(x2)					65'		20'/10
SM-50W277-37W240-430	15910	SM-50W277-37W240-85(x2)	67	2x 50A		430	42.5'		20'/14
		SM-50W277-37W240-130(x2)					65'		20'/10
SM-50W277-37W240-460	17020	SM-50W277-37W240-100(x2)	71	2x 50A		460	50'		20'/14
		SM-50W277-37W240-130(x2)					65'		20'/10
SM-50W277-37W240-520	19240	SM-50W277-37W240-130(x4)	80	2x 50A		520	65'		20'/10
							65'		20'/10
SM-50W277-37W240-615	22755	SM-50W277-37W240-75(x3)	92	3x 40A		615	37.5'		20'/14
		SM-50W277-37W240-130(x3)					65'		20'/10
SM-50W277-37W240-645	23865	SM-50W277-37W240-85(x3)	96	3x 50A		645	42.5'		20'/14
		SM-50W277-37W240-100(x3)					65'		20'/10
SM-50W277-37W240-690	25530	SM-50W277-37W240-100(x3)	100	3x 50A		690	50'		20'/14
		SM-50W277-37W240-130(x3)					65'		20'/10
SM-50W277-37W240-780	28860	SM-50W277-37W240-130(x6)	120	3x 50A		780	65'		20'/10
							65'		20'/10
SM-50W277-37W240-820	30340	SM-50W277-37W240-75(x4)	128	4x 40A		820	37.5'		20'/14
		SM-50W277-37W240-130(x4)					65'		20'/10
SM-50W277-37W240-860	31820	SM-50W277-37W240-85(x4)	133	4x 50A		860	42.5'		20'/14
		SM-50W277-37W240-130(x4)					65'		20'/10
SM-50W277-37W240-920	34040	SM-50W277-37W240-100(x4)	142	4x 50A		920	50'		20'/14
		SM-50W277-37W240-130(x4)					65'		20'/10
SM-50W277-37W240-1040	38480	SM-50W277-37W240-130(x8)		4x 50A		1040			

Kits come with the following components (see list above for specifics):

- SnowMeltz Mats
- Jumper kits
- Activator (M326ARS)
- M530 Contactor Panel
- Manuals

Important: DO NOT OVERLOAD CIRCUITS!
Follow the load balancing chart to ensure the appropriate loads are on specific circuits. It is also important to use breakers that are called for to be able to achieve the desired amount of power required. Alternate configurations may vary based on current production/inventory levels.

4.4. Product Selection (continued) - Jumbo Kits

SnowMeltz® Jumbo Kits - 37 Watts/Ft2 @240VAC - Multiple Circuits

Heatizon Part Number	Circuit Number/ Amperage	Mats	Amps Per Mat @ 240V	Amps Per Circuit @ 240V	Mat(s) Square Footage	Mat Lengths
SM-50W277-37W240-410	1 - 40A	SM-50W277-37W240-75	11.6	32	75	37′
		SM-50W277-37W240-130	20		130	65′
	2 - 40A	SM-50W277-37W240-75	11.6	32	75	37′
		SM-50W277-37W240-130	20		130	65′
SM-50W277-37W240-430	1 - 50A	SM-50W277-37W240-85	13.1	33.1	85	42.5′
		SM-50W277-37W240-130	20		130	65′
	2 - 50A	SM-50W277-37W240-85	13.1	33.1	85	42.5′
		SM-50W277-37W240-130	20		130	65′
SM-50W277-37W240-460	1 - 50A	SM-50W277-37W240-100	15.4	35.4	100	50
		SM-50W277-37W240-130	20		130	65′
	2 - 50A	SM-50W277-37W240-100	15.4	35.4	100	50′
		SM-50W277-37W240-130	20		130	65′
SM-50W277-37W240-520	1 - 50A	SM-50W277-37W240-130(x2)	20	40	130	65′
	2 - 50A	SM-50W277-37W240-130(x2)	20	40	130	65′
SM-50W277-37W240-615	1 - 40A	SM-50W277-37W240-75	11.6	31.6	75	37′
		SM-50W277-37W240-130	20		130	65′
	2 - 40A	SM-50W277-37W240-75	11.6	31.6	75	37′
		SM-50W277-37W240-130	20		130	65′
	3 - 40A	SM-50W277-37W240-75	11.6	31.6	75	37′
		SM-50W277-37W240-130	20		130	65′
SM-50W277-37W240-645	1 - 50A	SM-50W277-37W240-85	13.1	33.1	85	42.5′
		SM-50W277-37W240-130	20		130	65′
	2 - 50A	SM-50W277-37W240-85	13.1	33.1	85	42.5′
		SM-50W277-37W240-130	20		130	65′
	3 - 50A	SM-50W277-37W240-85	13.1	33.1	85	42.5′
		SM-50W277-37W240-130	20		130	65′
SM-50W277-37W240-690	1 - 50A	SM-50W277-37W240-100	15.4	35.4	100	50′
		SM-50W277-37W240-130	20		130	65′
	2 - 50A	SM-50W277-37W240-100	15.4	35.4	100	50′
		SM-50W277-37W240-130	20		130	65′
	3 - 50A	SM-50W277-37W240-100	15.4	35.4	100	50′
		SM-50W277-37W240-130	20		130	65′
SM-50W277-37W240-780	1 - 50A	SM-50W277-37W240-130(x2)	20	40	130	65′
	2 - 50A	SM-50W277-37W240-130(x2)	20	40	130	65′
	3 - 50A	SM-50W277-37W240-130(x2)	20	40	130	65′
SM-50W277-37W240-820	1 - 40A	SM-50W277-37W240-75	11.6	32	75	37′
		SM-50W277-37W240-130	20		130	65′
	2 - 40A	SM-50W277-37W240-75	11.6	32	75	37′
		SM-50W277-37W240-130	20		130	65′
	3 - 40A	SM-50W277-37W240-75	11.6	32	75	37′
		SM-50W277-37W240-130	20		130	65′
	4 - 40A	SM-50W277-37W240-75	11.6	32	75	37′
		SM-50W277-37W240-130	20		130	65′

4.4. Product Selection (continued) - Jumbo Kits

SnowMeltz® Jumbo Kits - 37 Watts/Ft2 @240VAC - Multiple Circuits

Heatizon Part Number	Circuit Number/ Amperage	Mats	Amps Per Mat @ 240V	Amps Per Circuit @ 240V	Mat(s) Square Footage	Mat Lengths
SM-50W277-37W240-860	1 - 50A	SM-50W277-37W240-85	13.1	33.1	85	42.5′
		SM-50W277-37W240-130	20		130	65′
	2 - 50A	SM-50W277-37W240-85	13.1	33.1	85	42.5′
		SM-50W277-37W240-130	20		13	65′
	3 - 50A	SM-50W277-37W240-85	13.1	33.1	85	42.5′
		SM-50W277-37W240-130	20		130	65′
	4 - 50A	SM-50W277-37W240-85	13.1	33.1	85	42.5′
		SM-50W277-37W240-130	20		130	65′
SM-50W277-37W240-920	1 - 50A	SM-50W277-37W240-100	15.4	35.4	100	50′
		SM-50W277-37W240-130	20		130	65′
	2 - 50A	SM-50W277-37W240-100	15.4	35.4	100	50′
		SM-50W277-37W240-130	20		130	65′
	3 - 50A	SM-50W277-37W240-100	15.4	35.4	100	50′
		SM-50W277-37W240-130	20		130	65′
	4 - 50A	SM-50W277-37W240-100	15.4	35.4	100	50′
		SM-50W277-37W240-130	20		130	65′
SM-50W277-37W240-1040	1 - 50A	SM-50W277-37W240-130(x2)	20	40	130	65′
	2 - 50A	SM-50W277-37W240-130(x2)	20	40	130	65′
	3 - 50A	SM-50W277-37W240-130(x2)	20	40	130	65′
	4 - 50A	SM-50W277-37W240-130(x2)	20	40	130	65′

When installing SnowMeltz multiple mat systems, be sure to keep track of which mat is going to the appropriate circuit. Mark the cold leads and/or note resistance to keep track.

The use of junction boxes may be required to extend cold leads back to either the activation device or to the contactor panel. Extending/junctioning cold leads MUST be done in accordance with the National Electric Code and any/all local codes. Be sure to note the amps per mat/circuit in order to determine the appropriate conductor and junction box to use. Any junction box used outside MUST be outdoor-rated.

Important: DO NOT OVERLOAD CIRCUITS!
Follow the load balancing chart to ensure the appropriate loads are on specific circuits. It is also important to use properly sized breakers to be able to achieve the desired amount of power required.

4.5. Product Selection (continued) - SnowMeltz Basic Kits

SnowMeltz basic kits are meant to be installed in small areas such as landings, short walkways or paths. Mats provided are either 37 or 50 watts per square foot, see chart below for electrical loads.

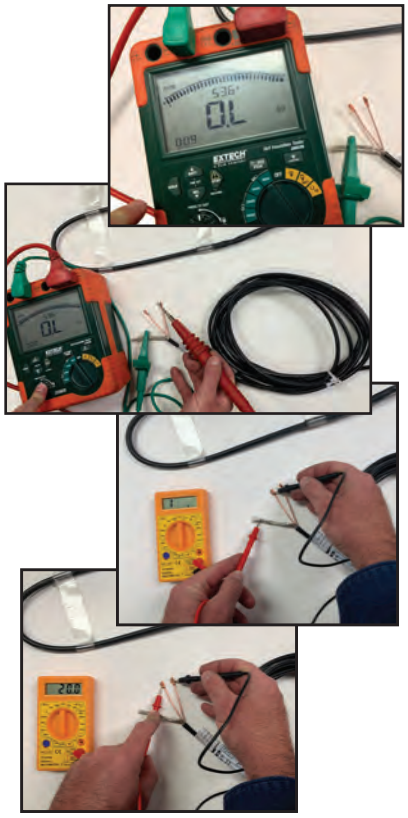
- The M325 12-Hour timer is **NOT** rated for use outdoors, it MUST be mounted indoors, following all electric codes.
- For concrete, the mats should NOT cross any control joint (cut or trowel), without using a jumper (MICABJMPKIT, not included with the basic kits, Visit moreheat.com/snowmeltz to order.) to protect the cable.
- Power will need to be ran to the M325 (12-hour Timer) and then to the SnowMeltz mat. ***DO NOT SUBSTITUTE AN ON/OFF SWITCH FOR THE TIMER.***
- In the case that the SnowMeltz cold lead (the unheated portion of wire) needs to be extended to reach the M325 location; this must be done using a properly rated feeder line and if outside, must be in a water-tight junction box. Follow all local electric codes when wiring the SnowMeltz system.

SnowMeltz® Basic Kits - 37/50 Watts/Ft2 @240VAC - Electrical Loads:

Heatizon Part Number	Square Footage	Total Watts @ 240V	Amps @ 240V	Mat Lengths (ALL 2' WIDE)
SM-50W277-37W240-10B	10	370	1.5	5'
SM-50W277-37W240-15B	15	555	2.3	7.5'
SM-50W240-37W208-15B	15	750	3.2	7.5'
SM-50W240-37W208-20B	20	1000	4.2	10'
SM-50W277-37W240-25B	25	925	3.9	12.5

Heatizon Part Number	Square Footage	Total Watts @ 240V	Amps @ 240V	Mat Lengths (ALL 2' WIDE)
SM-50W240-37W208-30B	30	1500	6.3	15
SM-50W277-37W240-35B	35	1295	5.4	17.5'
SM-50W277-37W240-40B	40	1480	6.2	20'
SM-50W277-37W240-45B	45	1665	6.9	22.5'
SM-50W277-37W240-50B	50	1850	7.7	25'

5. Required Tests (First)



Insulation Resistance with Megohmmeter

Before, during, and after installation, it is necessary to measure the insulation resistance between the heating conductor and the protective grounding screen with a 500VDC Megohmmeter. This measured value may not be less than ***0.5 Megohm***. Connect the voltage lead to both of the inner cold lead conductors and the earth lead to the cold lead outer grounding braid. Test resistance at 500VDC. Record the measured values in the certificate of warranty.

Cable Conductor Resistance with Multimeter

Before, during, and after installation, it is necessary to measure the resistance of the heating circuit with a multimeter. The measured values should be equal -5% to +10%.

Connect one meter lead to the one cold lead inner conductor and the other meter lead to the other cold lead inner conductor. Take the Ohm reading. Record the measured values in the certificate of warranty.

Be sure to check product label for proper resistance, operating amperage, operating voltage, cable length and other important information when performing tests.

6. Area Preparation

Ensure that the substrate has been properly compacted and drainage has been satisfactorily addressed. For substrate preparation and concrete recommendations please refer to page 1 of this manual for "A FEW CONCRETE SUGGESTIONS". Other site preparation recommendations include, cleaning up the site to eliminate objects that may damage the heating element prior to, during and after the installation.

Use the site sketch to transfer the following information to the site.

- Identify and mark the location of any and all joints if the heating cable or mat will be installed into a new asphalt or a concrete slab, do not forget to use jumpers for any and all joints.
- Determine the location of the starting points of the heating element and the exit points for the cold leads. Connections must be embedded in asphalt, concrete, or other cementitious material.
- Determine the location of the activation device. If using an in-slab temperature or temperature/moisture sensor, mark the location for the activation device and install a conduit sleeve for the lead wire to the in-slab sensor. An automated activator is the "eyes and ears" of the snow melt system. It is important that it be installed in a location that will allow it to turn the snow melt system "on" when it is needed and "off" when it is not needed. Verify the proper location has been selected for the activation device. Manual activators require human action—as a result they should be placed in a location that is convenient and easily accessible.

7. Installation

7.1. Concrete Preparation: Loose heating cable not in a mat may be secured in place by landscape stakes and plastic wire ties, welded wire fabric and plastic wire ties or tape, or pre-punched steel straps purchased from your Heatizon Distributor or Representative. Do not compress or strain the cable, run heavy machinery, equipment, or vehicles over it. Be careful to avoid stepping on the cold section factory connection of the cable. Consult the NEC or CEC for grounding requirements of rebar or welded wire fabric for concrete installations. When working with concrete or asphalt joints, design the layout so each section of the slab is covered and the cable crossing of joints are minimized. Mats should be installed in evenly spaced runs per the system design and plan. Sleeve hand rail posts to avoid drilling or penetrations in the slab after the pour.

- **Two Pour Concrete:** In this installation a concrete slab is already present and an additional slab will be poured on top. The heating cable can be laid out using welded wire fabric and zip ties or tape, or pre punched steel strapping for loose cable installations not in a mat form. Cold leads should be sleeved for this installation following conductor fill and size requirements in the NEC and CEC. The heating cable portion and cold connection can not pass into the conduit sleeve. Jumpers must be used to protect the heating cable where joints are present on the concrete slab below as well as in the new slab.
- **Single Pour Concrete:** In this installation the aggregate or concrete base is prepared first. Once the base is prepared the installer can begin by placing a grid of welded wire fabric or rebar in preparation for the heating cable. The heating cables or mats can be attached to the welded wire fabric with plastic zip ties or tape. Jumpers must be used for any and all joint cable crossings. Do not cross expansion joints. Once the heating cable is installed, place chairs or concrete dobies under the rebar or welded wire fabric grid to bring the heating cable within 2" to 3" of the surface. Cold leads can be sleeved following conductor and fill size requirements in the NEC and CEC. The heating cable portion and cold connection can not pass into any conduit sleeve.

7.2. Asphalt Preparation: Loose heating cable not in mat form may be secured in place by landscape stakes and plastic wire ties, welded wire fabric and plastic wire ties or tape, or pre-punched steel straps purchased from your Heatizon Distributor or Representative. Cables in a mat can be laid out in the configuration desired directly on the surface. Do not compress or strain the cable, run heavy machinery, equipment, or vehicles over it. Be careful to avoid stepping on the cold section factory connection of the cable. Consult the NEC or CEC for grounding requirements of rebar or welded wire fabric for asphalt installations. When working with concrete or asphalt joints, design the layout so each section of the slab is covered and the cable crossing of joints are minimized. Cables or mats should be installed in evenly spaced runs per the system design and plan. Sleeve hand rail posts to avoid drilling or penetrations in the slab after the pour.

- **Two Pour Asphalt:** In this installation a binder or base coat of asphalt is laid down and an additional asphalt layer is placed on top of the heating cable. The base coat is to be rolled smooth in preparation of the heating cable installation. Welded wire mesh can be used to install loose cables in a grid. The grid can be secured to the base coat slab using stakes. If using a heating cable in mat form, the mats can be laid out on the base coat slab and secured down using the mesh portion of the mat and not the heating cable. Cold leads should be sleeved for this installation following conductor fill and size requirements in the NEC and CEC. The heating cable portion and cold connection can not pass into the conduit sleeve. Jumpers must be used to protect the heating cable where any and all joints are present. Do not cross expansion joints.
- **Single Pour Asphalt:** In this installation the aggregate or base is prepared first. Once the base is prepared, a layer of sand or stone dust is placed over the base coat approximately 1" thick. The installer can begin by placing a grid of welded wire fabric or landscaping stakes in preparation for the heating cable. The heating cables or mats can be attached to the welded wire fabric, or landscaping stakes with plastic zip ties that will not melt. Jumpers must be used for any and all joint cable crossings. Cold leads should be sleeved following conductor and fill size requirements in the NEC and CEC. The heating cable portion and connection can not pass into any conduit sleeve.

7.3. Sand Bed Paver Preparation: The heating cable may be secured in place by landscape stakes and plastic wire ties, welded wire fabric and plastic wire ties or tape. Do not compress or strain the cable. Do not run heavy machinery, equipment, or vehicles over the cable. Be careful to avoid stepping on the cold section factory connection of the cable.

- **Sand Bed Installation:** In this installation the aggregate or base is prepared first. Cover the base with 1/2" layer of compact sand. Use welded wire fabric or landscape stakes to place loose heating cables or lay the heating cable mat on the layer of sand in accordance with determined layout. Cover the heating cable or mat with another 1/2" layer of sand. The paver installer must be careful to not walk on the factory connection or damage the heating cable with shovels, rakes or other tools. Cold leads should be sleeved for this installation following conductor fill and size requirements in the NEC and CEC.

7.4. Mortar Under Stone & Tile Preparation: The heating cable may be secured in place with pre-punched steel straps or anchor kits purchased from your Heatizon Distributor or Representative. Do not compress or strain the cable. Do not run heavy machinery, equipment, or vehicles over it. Be careful to avoid stepping on the cold section factory connection of the cable.

- **Mortar Bed Installation:** Anchor the heating cable in parallel runs in preparation for mortar placement. Cold leads should also be anchored for this installation back to the exit point of the slab and placed in conduit following conductor fill and size requirements in the NEC and CEC.

7.5. Stairs: When installing in stairs, ensure that the heating element should not be too close to the edge of the stair and still be completely embedded. Also be sure that where the cable spans the rise of the stairs get embedded in the substrate to avoid causing a hot spot, and damaging the cable. Avoid doing a full run on the rise of the stair.

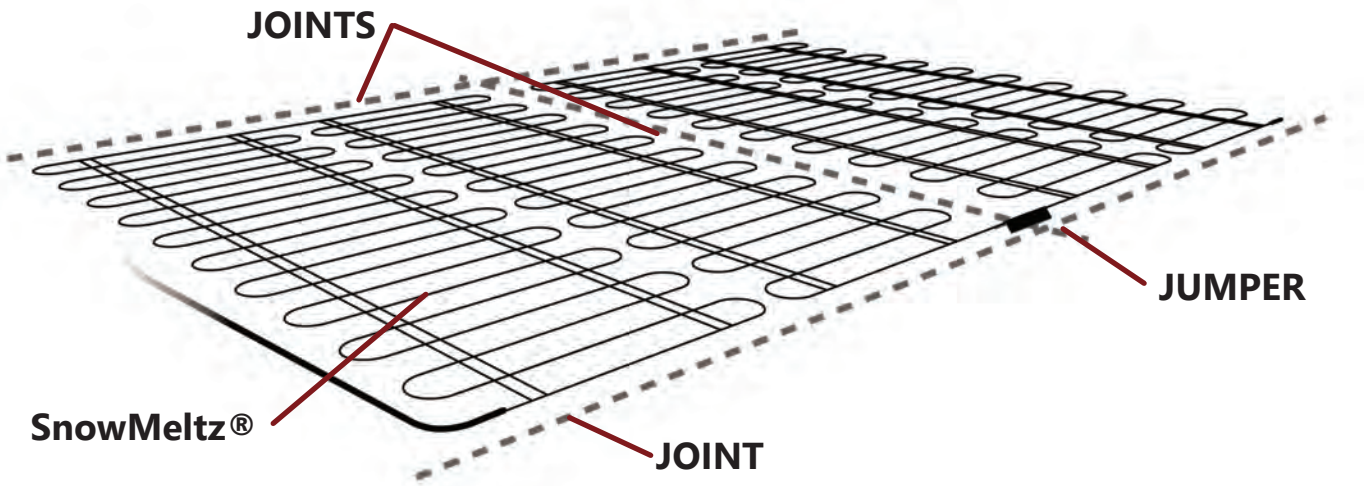
- **Concrete Stair Installation:** The heating element must be 1.5 inches below and spaced 4" away from the edge of the stair. When the cable spans the rise, it too should be completely embedded. If using rebar, use the same methods to secure the cable to the rebar as described in the "Concrete" section. Use Jumpers when stairs will have joints between individual stairs, or into adjoining concrete that is to be heated.
- **Paver Stair Installation:** Be sure that the heating element is properly secured prior to mortaring, and be sure that all the heating element is properly embedded. The cable should not be strained or compressed. Allow the mortar to fully cure before walking on pavers.

Cold Lead(s): The cold lead(s) should be run in a conduit to either a junction box, panel, or activator and should NEVER cross or come in contact with the SnowMeltz® heating element.

8. Jumpers

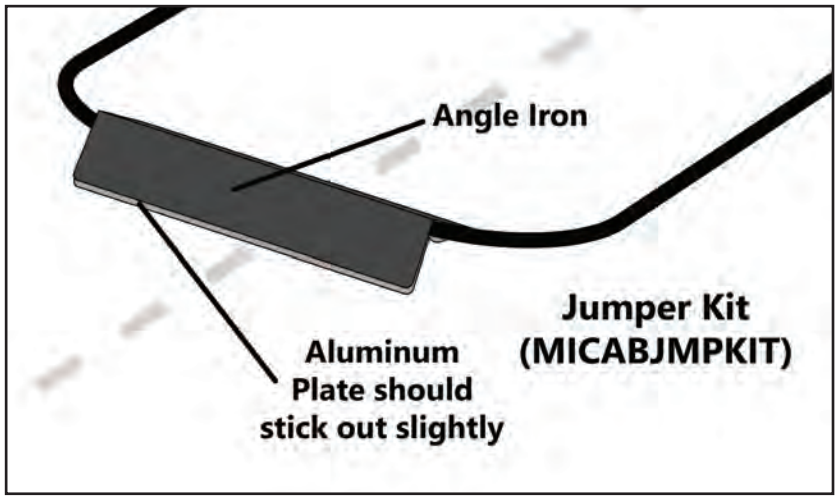
ASHRAE and Heatizon always require the use of jumpers through joints. Never extend the heating cable through any joint in asphalt and/or concrete without a jumper. Determine the number of joints in order to determine the number of Jumper Kits required for the project. Always jumper through all joints using the appropriate jumper kit provided by Heatizon Systems.

When laying out SnowMeltz® in concrete where jumpers will need to be used, best practice is to minimize the number of times the heating element will cross any joint. Ideally, arrange the layout so that the mat fills one section of the concrete (between joints) then crosses the joint(s). The best solution for jumpers is to use the jumper Kit supplied by Heatizon (Heatizon Part #MICABJMPKIT), it includes components for four jumpers.

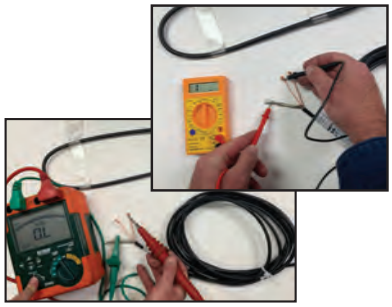


CONCRETE JOINTS AND USING JUMPERS

- **Control Joints:** Control Joints are intended to control where the slab will crack and are placed either in fresh concrete or saw cut in after the concrete is poured. Spacing of these joints will vary depending on the size and shape of the slab. Use the Cable Jumper to protect the heating cable when crossing control joints.
- **Construction Joints:** Construction joints are a common result when multiple concrete pours are completed at different stages during construction. Use a Cable Jumper to protect the heating cable when crossing construction joints.



- **Expansion Joints:** Expansion or Isolation joints result when concrete is isolated from something else which can be concrete, a wall, column etc. When an expansion joint is used between two concrete slabs the two structures are not connected using rebar, therefore movement can/will occur between them. Do not cross expansion joints with the heating portion of the cable. The cold lead portion of the cable may cross expansion joints as long as the cold lead is under or sleeved with conduit at the bottom of the joint.



9. Required Tests (Second)

Insulation Resistance with Megohmmeter/Multimeter
Following the steps outlined in Section 5, perform the second set of megohmmeter and multimeter tests, ensure that the readings are still consistent with factory specifications and with the readings taken from the previous step.

10. Install Activation Device

Heatizon activation devices come with data sheets, wiring diagrams, and instructions. Install the selected activator by carefully following the specific set of instructions that were included with the activation device. Some systems are professionally designed and can include custom wiring diagrams from our industry professionals. There are three available types of activators that are suitable for SnowMeltz®:

- **MANUAL** - Manual activators usually consist of a timer switch that keeps the system on for a set amount of time, then powers off the system. This activator requires some sort of panel (regardless of the number of circuits) to switch the load.

- **AERIAL** - These activators are mounted on a wall or on a conduit in the air in very close proximity to the area to be heated. They can be equipped with temperature and/or moisture sensors, and usually have some form of basic manual over-ride. Depending on the model, it may be able to switch smaller loads (30 amps) without the use of a panel. The sensor for this device must be able to detect the same circumstances that will be present in the area where the SnowMeltz® is installed.

- **REMOTE/IN-GROUND** - The activators usually have a head unit located indoors and have more functionality and have optional in-ground sensors that detect moisture/temperature on the concrete/asphalt. These units can also have separate remote temperature sensors. Normally these units require a panel to switch the load. When using in-ground sensors, the conduit for the sensor wire and head unit must NOT cross or come in contact with the heating element. The sensor must be mounted in the SAME substrate as the SnowMeltz® system is installed into. When using a remote temperature sensor, it should be located to receive the same conditions as the heated area. (No preconfigured SnowMeltz® kits offer an in-ground sensor, and must be purchased separately.

It is imperative that any/all conduit being used (for sensors, cold leads, power, etc.) do NOT come in contact with the heating element. Consult the individual instructions for the appropriate activator for wiring/mounting.

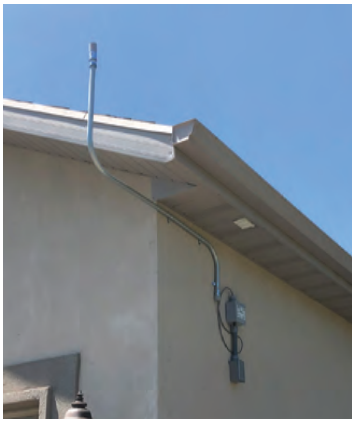
NOTES:

- **If the selected activation device requires conduit for a temperature sensor, the conduit must be centered between two runs of heating cable. Always run high voltage and low voltage conductors in separate conduits.**
- **Heatizon recommends that photographs of the installed heating cable be taken and/or hand drawings documenting the layout be completed prior to installing the final surface.**

10.1. M326 Series AERIAL ACTIVATOR Location

M326A/M36A-2Z should be installed in a location that will receive the same snowfall as the SnowMeltz® system(s) and that will not be obstructed.

The M326ARS/M326ARS-2Z must be located outside for accurate temperature/moisture reading. The main unit can be mounted on an exterior wall or to a post, provided that all necessary electrical connections can be made. The moisture sensor should be located in such a way that it receives the same exposure to falling moisture as the area being controlled. The sensor head can be located up to 10 feet away from the main M326ARS/M326ARS-2Z unit.



It is required to mount the M326 Series activators on top of a weather-proof junction box. Connections to incoming power and the SnowMeltz® mat(s) will be made inside this junction box.

M428/M431 In-ground sensors: Please consult the installation instructions included with these units.

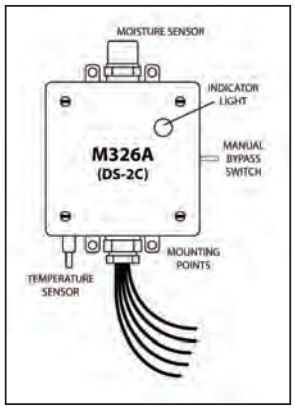
From the pictures, you can see the main unit and remote sensor are mounted in separate locations in order to maximize moisture detection.

- **Before providing power to the SnowMeltz system, any activators, and panels, ensure the substrate (concrete, asphalt, or pavers) is installed and fully cured.**
- **DO NOT SEND POWER TO UNEMBEDDED SNOWMELTZ MATS, THIS WILL BURN THEM OUT AND VOID THE WARRANTY.**
- **DO NOT USE THE SNOWMELTZ TO CURE CONCRETE**

10. Activator Guides/Wiring

10.2 M326 Series Activators/Controllers

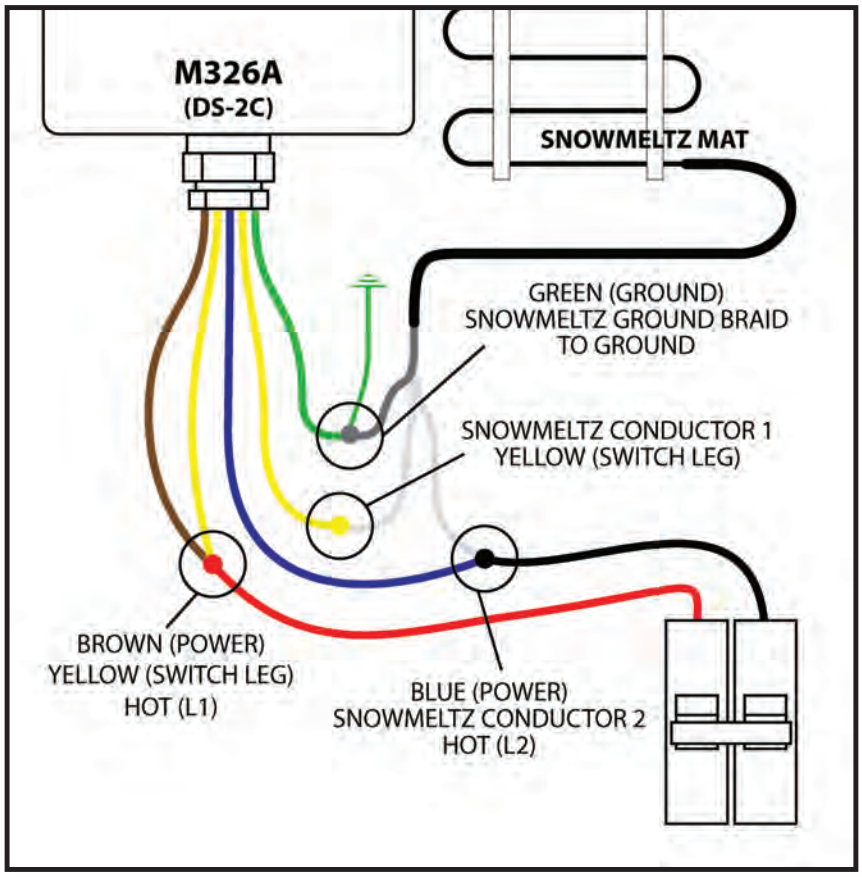
- Control Unit must be mounted outside within close proximity of the SnowMeltz® system(s).
- If not using a panel, power should be ran to the location of the M326.
- If using a panel, the device requires 120V/240V to operate.
- Mounting be done by mounting on top of a sturdy conduit or using the mounting points on the top and bottom to secure it, ensure that nothing obstructs the sensor from receiving moisture.



NOTES:

- The following mounting/wiring instructions assume that a relay panel is NOT being used and power is coming from a single 240 volt circuit. For all other installation instances, please consult the complete installation manuals for the M326A and panels for other installation/wiring instructions.
- For multiple mats using a single circuit, the mats will be wired similar to using one mat. One conductor from each mat will be connected to a leg from the breaker and the other conductor will be wired to one of the yellow switch legs of the M326A.

10. MOUNTING/WIRING - 10.3. NO PANEL

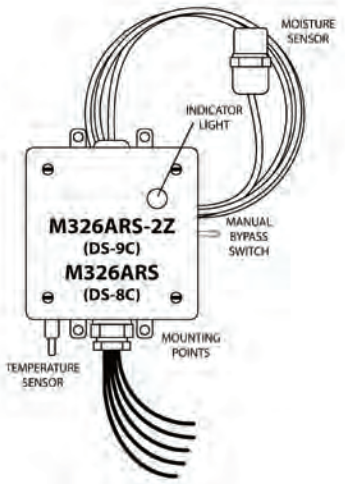


1. Be sure to follow local code for the correct gauge of wire for a dual-pole 30 or 40 amp 240v circuit.
2. Power to the M326A must be off before wiring the unit.
3. Wire the green ground wire from the M326A to the silver ground shield from the SnowMeltz® mat(s) and to a suitable grounded wire.
4. Take one yellow wire and the brown wire and attach them to one leg of the incoming circuit from the breaker.
5. The other yellow wire from the M326A will be wired to one of the copper conductors on the SnowMeltz® mat(s).
6. Take the blue wire and wire it to the other leg of the incoming power and the other copper conductor from the SnowMeltz® mat(s).
7. Ensure all connections are tight and secure and close the junction box and power up the system.
8. **Before powering on the system ensure the substrate (concrete, asphalt, or pavers) is installed and fully cured.**
9. The light on the front of the M326A should be solid green, indicating power is being supplied to the unit.
10. Test the system to switch the power to MANUAL using the switch on the side of the M326A, the status light should be blinking, indicating the M326A is providing power to the SnowMeltz® mat.
11. Return the switch to AUTOMATIC, the installation is now complete.

NOTE:

- During warmer times of the year, the heating element may not heat enough to be able to determine if it is working properly, therefore the test run is to merely check to see if the activator powers on according to it's operating procedures. Running another test or checking settings once snowfall has occurred is advisable.

10.4. M326ARS/M326ARS-2Z



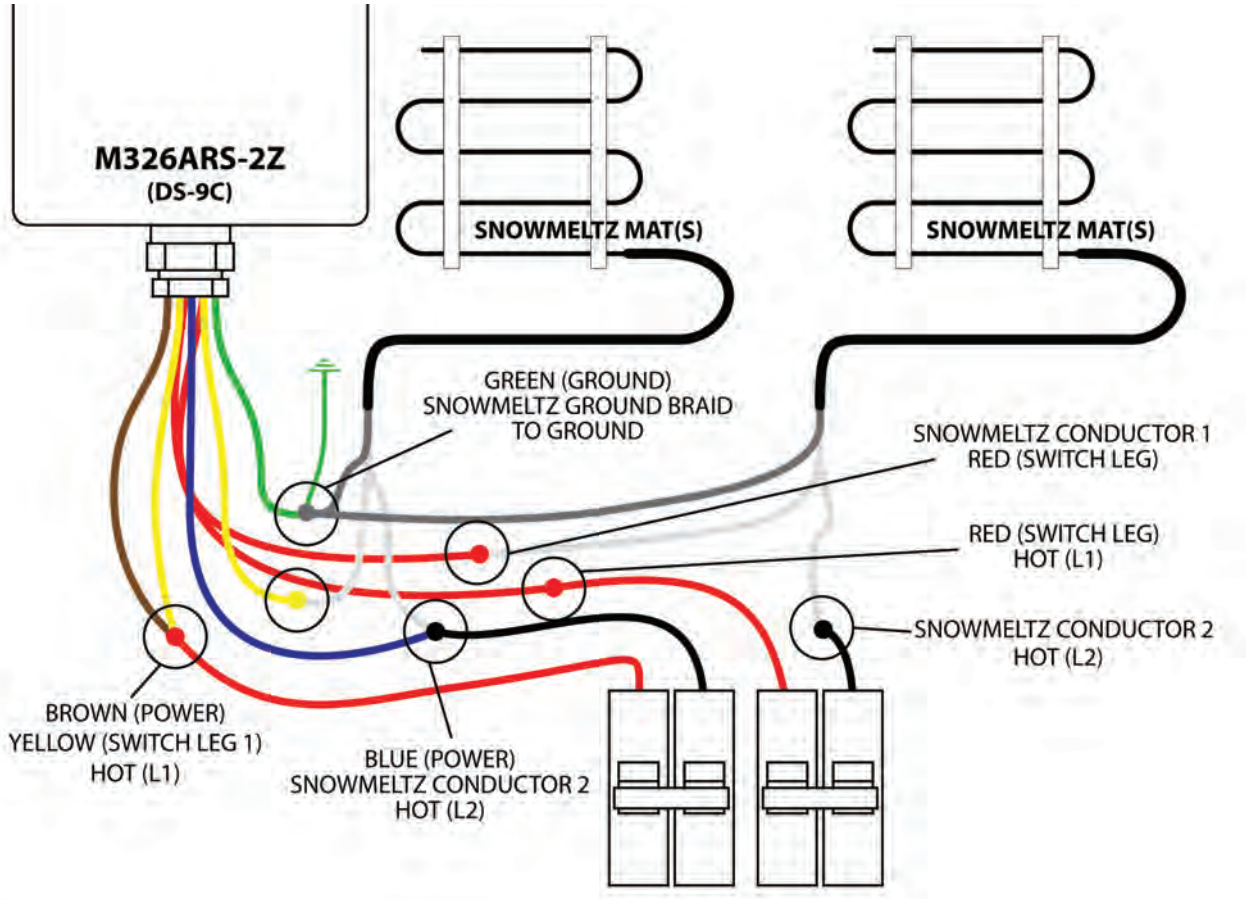
The M326ARS/M326ARS-2Z is an automatic temperature and moisture sensor that switches up to 30 amps (M326ARS) and up to two 30 amp loads (M326ARS-2Z). Both have a remote moisture sensor that can be located in a location up to 10 feet away from the main unit, providing for better moisture gathering placement.

For wiring the M326ARS, please refer to the primary SnowMeltz Manual wiring diagram for the M326A as wiring for both units is the same.

Be sure to follow local code for the correct gauge of wire for a dual-pole 30 or 40 amp 240v circuits.

Wiring the M326ARS-2Z using two circuits is as follows:

Important: DO NOT OVERLOAD CIRCUITS - Connect SnowMeltz mats in the proper way to ensure adequate load balancing.



NOTE:

Do not make ANY connections inside of the following activators:

- M326A/2Z
- M326ARS/2Z

All electrical connections for these devices MUST take place outside of the device, in a outdoor-rated junction box with adequate space for all connections

10.5. M326 SERIES SETUP

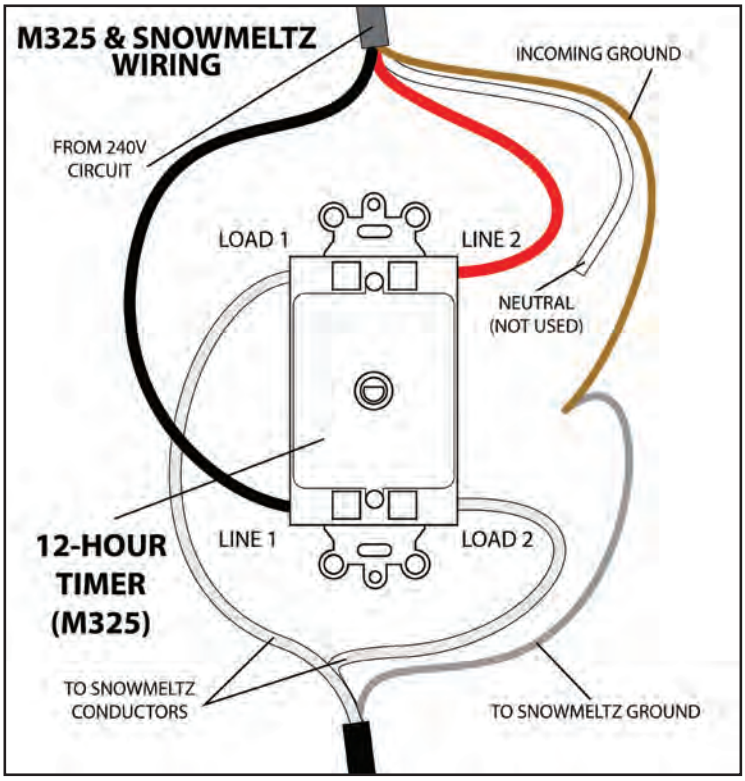
The following should be performed BEFORE installing the activator and connecting it to power.

1. Remove the four screws on the cover.
2. Look for the five (5) dipswitches near the center of the board.
3. The configuration should be as follows, from top to bottom: (Figure 10.3A)
   - LD (5) to ON
   - LTC (4) to OFF
   - DEL (3) to ON
   - RAIN (2) to OFF
   - SNOW (1) to ON
4. Located the dials on the left side of the board.
5. The configuration should be as follows, from top to bottom: (Figure 10.3B)
   - TRIG TEMP to 39
   - DELAY OFF to MID
   - SENSITIVITY to approximately 2 o'clock (one side should point to MORE)
6. Replace cover and secure it with the four screws.
7. Proceed to installing the M326A and wiring it for use.

Fig. 10.3A

Fig. 10.3B

The Activator has now been configured to activate the SnowMeltz® mat(s) once the temperature is below 39 AND snow (moisture) is detected. The system will also remain activated for approximately four (4) hours AFTER moisture is no longer detected. To change the amount of After Run time, adjust the dial labeled "DELAY OFF" to MIN or MAX to lessen or lengthen the After Run time.



10.6 M325D - SnowMeltz Basic Kits

SnowMeltz basic kits come with a M325 12-hour manual timer, which can switch up to 10 amps at 240 volts.

- The M325 12-Hour timer is **NOT** rated for use outdoors, it MUST be mounted indoors, following all electric codes.
- Power will need to be ran to the M325 (12-hour Timer) and then to the SnowMeltz mat. ***DO NOT SUBSTITUTE AN ON/OFF SWITCH FOR THE TIMER.***
- In the case that the SnowMeltz cold lead (the unheated portion of wire) needs to be extended to reach the M325 location; this must be done using a properly rated feeder line and if outside, must be in a water-tight junction box. Follow all local electric codes when wiring the SnowMeltz system.

10.7. Panel Installation

M330/M530 Panel Installation

The M330/M530 panels must be located inside, unless a custom outdoor-rated enclosure is used. The location should be free from moisture and reasonably close access to heated area and main circuit panel for making electrical connections.

M530 Contactor panel: A non-GFEP panel using 1-4 dual sided 50-amp contactors to switch loads. (Comes standard with SnowMeltz Jumbo Kits). Are able to switch 120/208/240/277 Volts.

M330/G Relay Panels: All M330 panels handle 1 to 4 circuits are either rated to handle 30 or 40 amps all can handle 120/208/240/277 volts.

- M330-X: Non-GFEP, 30-amp panels
- M330-XX: Non-GFEP, 40-amp panels
- M330G-X: GFEP, 30-amp panels
- M330G-4X: GFEP, 40 amp panels (Can handle up to 480V).

Please follow all instructions for wiring the M530/M330 with the the M326 series activators. Other activators and/or mixture of activation devices may require custom wiring.

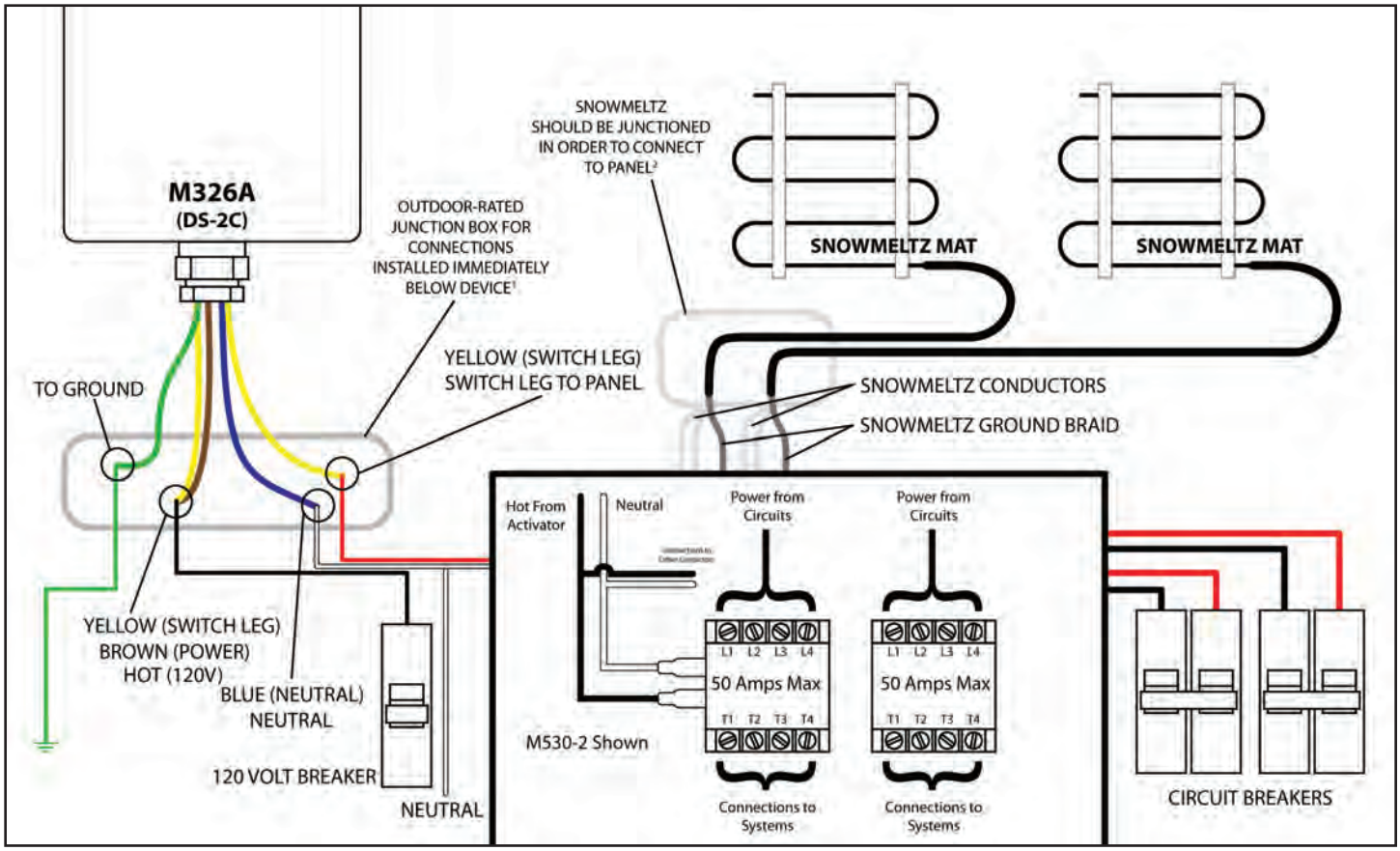
10.8. MOUNTING/WIRING - WITH PANEL

When installing multiple SnowMeltz and the total amp load is over 30 amps, a panel will be required. Heatizon has several options to meet this need:

- M530 Series - Contactor panel, perfect for low-budget applications, handles up to 4 circuits, and up to 50 amps per circuit, no GFEP.
- M330 Series - Relay panel without GFEP, handles up to 4 circuits, and up to 30 amps per circuit.
- M330-50 Series - Relay panel without GFEP, handles up to 4 circuits, and up to 50 amps per circuit.
- M330G Series - Relay panel with GFEP, handles up to 4 circuits, and up to 30 amps per circuit.
- M330G-40 Series - Relay panel with GFEP, handles up to 4 circuits, and up to 40 amps per circuit.
- Custom Panels created to project specifications.

For wiring the panel for your project consult the wiring diagram for that specific panel. Some panels may or may not require 120V for direct power.

For M530 series contactor panels:

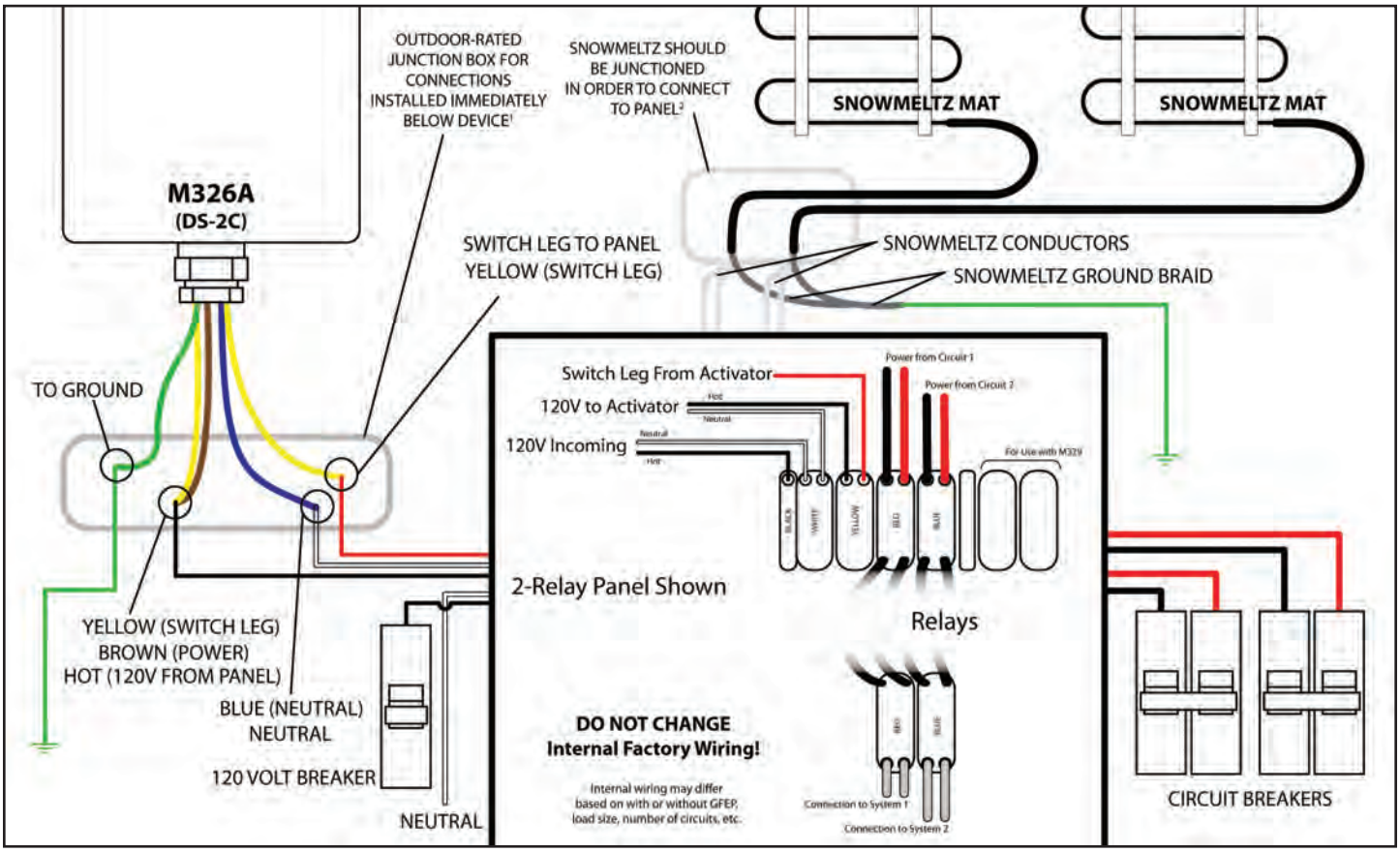


NOTES:

1. Connections to the M326 series activators, CANNOT be made inside the device, they MUST be made in a outdoor-rated junction box mounted below the device. Failure to do so will void the warranty and damage the unit.
2. SnowMeltz cold leads are 20 feet long, in the event that the cold lead(s) are not long enough, they must be junctioned using an appropriate gauge wire for the load/voltage and the appropriate junction box dependant on the location of the box. Please follow local codes for type/gauge of wire and type/rating of junction box to be used.
3. Use the appropriate number and size of breakers for the project, do not overload circuit breakers, or contactors in a panel.
4. Contactors have a maximum capacity of 50 full load amps, do not exceed this rating.

10.6. MOUNTING/WIRING - WITH PANEL (Continued)

For M330 series relay panels:



NOTES:

1. Connections to the M326 series activators, CANNOT be made inside the device, they MUST be made in a outdoor-rated junction box mounted below the device. Failure to do so will void the warranty and damage the unit.
2. SnowMeltz cold leads are 20 feet long, in the event that the cold lead(s) are not long enough, they must be junctioned using an appropriate gauge wire for the load/voltage and the appropriate junction box dependant on the location of the box. Please follow local codes for type/gauge of wire and type/rating of junction box to be used.
3. Use the appropriate number and size of breakers for the project, do not overload circuit breakers or relays in a panel.
4. Consult the instructions for the specific relay panel purchased for it's full load specifications. DO NOT exceed this full load rating.
5. Do not alter, tamper with, or change the factory wiring of any M330 Series relay panel, as this will void the warranty and can cause damage to the panel, connected heating systems, and circuit breakers.

11. Surface Application

For Concrete Applications: Proceed with applying concrete. Ensure that the concrete covers the entire heating element and the connection between the heating cable and cold leads. Great care should be taken to not damage the heating cables by impacting, cutting or other abuse.

For Asphalt Applications: Heatizon Systems heating cable is of high quality and durable construction. As a result, it can tolerate the heat and compression of newly poured asphalt with some modification. The heating cables can tolerate 464°F(240°C) for 30 minutes. For single pour asphalt, cover the heating element with 1/2" of substrate material prior to installing asphalt per the directions below. For both single and two pour asphalt installations place a layer of asphalt at least 1/2 inch thick over the cables by hand, and roll with a roller of approximately 1.5 ton size. This will protect the heating cables from damage by tools or paving equipment and will protect the cable from heat during placement of the main pour. Continuously check the insulation resistance of the heating cables to verify that the cables are not damaged during placement of the asphalt. Continue with the main pour.

NOTE:

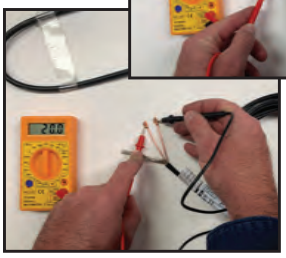
Heatizon recommends that photographs or detailed hand-drawn diagrams of the installed heating cable be completed prior to installing the asphalt, concrete, pavers, stone or tile.

For Paver Applications: Proceed with the installation by covering the heating cable with a layer of sand or stone dust. Ensure that the sand or stone dust covers the entire heating element and the connection between the heating element and cold leads before the pavers are installed. Great care should be taken to not damage the heating cables by impacting, cutting or other abuse.

For Stone or Tile with Mortar Applications: Cover the heating cable with mortar to completely embed them and allow it to set. Allowing the first layer of mortar to set will protect the heating cables during the final installation and the setting bed for stone or tile. Install the Stone or Tile and keep note that the final cable depth of the cable from the surface should be 2". Great care should be taken to not damage the heating cables by impacting, cutting or other abuse.

The system must not be turned on until the concrete has fully cured. DO NOT USE SnowMeltz® TO CURE/DRY CONCRETE.

12. Required Tests (Third)



Insulation Resistance with Megohmmeter
Before, during, and after installation, it is necessary to measure the insulation resistance between the heating conductor and the protective grounding screen with a 500VDC Megohmmeter. This measured value may not be less than 0.5 Megohms.
Connect the voltage lead to the inner cold lead conductors and the earth lead to the cold lead outer grounding braid or sheath. Test resistance at 500VDC. Record the measured values in the certificate of warranty.

Record cable conductor resistance with multimeter before, during, and after installation, it is necessary to measure the resistance of the heating circuit with a multimeter. The measured values should be equal -5% to +10%.

Connect one meter lead to the one cold lead inner conductor and the other meter lead to the other cold lead inner conductor. Take the Ohm reading. Record the measured values in the certificate of warranty.

Be sure to check product label for proper resistance, operating amperage, operating voltage, cable length and other important information when performing tests.

13. Electrical Connections

The connection of the power supply and the activation device must be done by a qualified electrician in accordance with the National Electrical Code (NEC) and the Canadian Electrical Code (CEC). Refer to the wiring diagram included with the activation device and/or panel(s).

Electrical Requirements:
120 or 277 VAC — Single Phase
208 or 240 VAC — Two Phase

The grounding shield from the Cold Lead(s) must be wired to Ground for all primary power installations. Section 426 of the NEC requires that each circuit to the heating cable be protected with a ground fault equipment protection devices.

14. Troubleshooting

Symptom	Probable Causes	Corrective Action
Area doesn't heat	No voltage.	Check circuit breaker.
	Circuit breaker tripped.	Ensure that the SnowMeltz® system is wired correctly for your application. The SnowMeltz® system requires a dedicated circuit(s). See the Product Selection "Table 1" of this manual
	Contactor/relay panel deactivated	Refer to panel Installation and Operation Manual.
	Activator not configured or wired correctly.	Refer to specific instructions included with the activator purchased for use with this system.
Area activated continuously	Activator not properly configured.	Refer to specific instructions included with the activator purchased for use with this system.
Installation instructions		Download SnowMeltz® Installation instructions from heatizon.com/snowmeltz
Cut or damaged the cable		Call Heatizon immediately: 888.239.1232 (8 am - 5 pm, (MST) M-F, Closed holidays)

15. FAQs

Q: What can I cut?
A: **The heating cable in the mat CANNOT BE CUT under any circumstances.** The mat (the white mesh strap) can be cut. The unconnected end of the cold lead can be cut/shortened.

Q: Can SnowMeltz® system be used for interior applications?
A: No, but contact Heatizon to hear about one of our many other solutions for interior applications.

Q: Can SnowMeltz® system be used for roof/gutter heating?
A: No, but contact Heatizon to hear about one of our many other solutions for these scenarios.

Q: Can SnowMeltz® be covered with gravel?
A: No, the airflow around the gravel (no matter the size) will cause the SnowMeltz® system to overheat and burnout.

Q: Where should the activator/sensor be located?
A: Aerial or ground sensors must be located in or close to the area(s) to be heated, and cannot be able to detect moisture unabated. Temperature sensors (either separate or combined) must be able to read an accurate temperature for the area to be heated.

Q: Can multiple mats controlled with one Activator?
A: Yes as long as the amp load for the activator is not exceeded or a relay/contactor panel is used.

Q: Are the 50 watt versions suitable for residential use?
A: Yes, but normally are overkill and will result in higher electrical consumption. 37 watt versions are suitable for most residential applications according to ASHRAE standards.
Q: Can 37 watt and 50 watt versions be mixed?
A: No, keep similar watt mats together, do not mix 37 watt mats with 50 watt mats.

HEATIZON
SYSTEMS

Use this grid to layout the SnowMeltz® system.

SnowMeltz® Warranty

SnowMeltz
From Heatizon Systems
4137 South 500 West
Murray, Utah 84123
888-239-1232 | heatizon.com

Heatizon Systems warrants SnowMeltz® to be free from defects in material and workmanship for a period of ten (10) years and Activation Device(s) for a period of one (1) year. Such warranty periods shall commence on the date of shipment by Heatizon Systems. If any parts are found to be defective in manufacture during such time period, Heatizon Systems will, at its sole option, replace or repair defective parts.

This Limited Warranty applies only if articles sold hereunder (a) are selected, designed, and installed according to instruction and operation manuals furnished by Heatizon Systems and installed in a "workmanlike manner" according to the building association standards adopted by Heatizon Systems, (b) remain in their originally installed location, (c) are connected to proper power supplies, (d) are not misused or abused, (e) show no evidence of tampering, mishandling, neglect, damage (accidental or otherwise), modifications or repair without the approval of Heatizon Systems, or damage done to the product by anyone other than Heatizon Systems, and (f) are installed in accordance with applicable code requirements. Any warranty claims must be made in writing, no later than one (1) month following expiration of the warranty period, and must be accompanied by the warranted part or component. Any claim not made in such manner shall not be honored by Heatizon Systems.

This Limited Warranty does not cover:

1. The workmanship of any installer of Heatizon Systems radiant panel or cable heating products.
2. Any Heatizon Systems radiant heating products that have a failure or malfunction resulting from improper or negligent operation, installation, accident, abuse, misuse, unauthorized alteration or improper repair or maintenance.
3. Any Heatizon Systems radiant heating products that have had components not purchased from Heatizon Systems integrated into or connected to them.
4. Any labor costs for removal of alleged defective part(s) and/or reinstallation of replacement part(s), transportation to and from Heatizon Systems (if necessary) and any other material necessary to perform the exchange or repair.
5. Any Heatizon Systems heating products that have not been properly registered by completion and return of the Warranty Registration Card attached hereto within ninety (90) days of the date of sale.

DISCLAIMER OF WARRANTIES:

This warranty described above is in lieu of all other warranties, express or implied, including but not limited to any implied warranties of fitness for a particular purpose and merchantability. Heatizon Systems expressly disclaims and excludes any liability for losses, expenses, inconveniences, consequential, incidental, indirect, or punitive damages for breach of any express or implied warranty. By installing and/or purchasing Heatizon Systems products, you accept the terms of this limited warranty.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above limitations and exclusions may not apply to you. This Limited Warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

HEATIZON SYSTEMS DISCLAIMS ANY WARRANTY NOT PROVIDED HEREIN INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. HEATIZON SYSTEMS FURTHER DISCLAIMS ANY RESPONSIBILITY FOR LOSSES, EXPENSES, INCONVENIENCES, SPECIAL, INDIRECT, SECONDARY, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING FROM OWNERSHIP OR USE OF THE PRODUCT. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE FACE HEREOF.

Heatizon Systems
4137 South 500 West
Murray, UT 84123
Phone (801) 293-1232 Fax (801) 293-3077
heatizon.com

SnowMeltz® Installation Registration Form

SnowMeltz
From Heatizon Systems
4137 South 500 West
Murray, Utah 84123
888-239-1232 | heatizon.com

Instructions: This form must be completed and returned for each installation. A copy should be retained by the homeowner. An installation is defined as each individual space in which SnowMeltz® is installed such as a driveway, patio, walkway, etc. Each SnowMeltz® shipment includes the following information essential to the proper installation of the products: Installation/Homeowners Manual, Wiring Diagrams, and Megohmmeter and Ohm Readings necessary to test the products. If any of this information is missing from the shipment, please call the dealer or our service department at 1-888-239-1232.

TO ENSURE WARRANTY PROTECTION FOR THE INSTALLATION(S), THE HOMEOWNER OR INSTALLER MUST COMPLETE ALL THE INFORMATION BELOW FOR EACH INSTALLATION AND RETURN THIS FORM TO HEATIZON SYSTEMS AT THE ADDRESS LISTED BELOW WITHIN 10 DAYS OF THE COMPLETED INSTALLATION.

I. Installer Information:

Installer's Name: _____ Installation Date: ___-___-___

Business Address _____

Phone Number: ____-____-_____ Email Address: _____

Name of Company (from which SnowMeltz® was purchased) _____

II. Owner Information:

Owner's Name: _____

Home Address: _____

Phone Number: ____-____-_____ Email Address: _____

Name of Space and Location where installed: _____

III. Products Used in Installation: (List Each SnowMeltz® Mat on a Separate Line)

(Note: "Hot" or "Neutral" in this table indicates the white conductors in the Cold Lead)

Mat or Cable Number	Model #	Total Watts	Volts	METER READINGS											
				Tests after mat has been received				After Mat is customized/cut and installed				After Mat has been embedded in concrete/ asphalt/sand or before final wiring			
				Megger Test	Conductor to Conductor	Conductor to Ground	Conductor to Ground	Megher Test	Conductor to Conductor	Conductor to Ground	Conductor to Ground	Megher Test	Conductor to Conductor	Conductor to Ground	Conductor to Ground
SAMPLE	1x 50	1850	240	532	19.2	Open	Open	532	19.2	Open	Open	532	19.2	Open	Open
#1															
#2															
#3															
#4															
#5															
#6															
#7															
#8															

Confirmation: The above information was measured and recorded correctly as indicated on the measuring instrument, and the enclosed drawing shows the final layout of the products and the electrical connections.

Installer's Signature: _____