



SMP Series

Snow Melt Panels

Installation, Operation, and Maintenance Manual

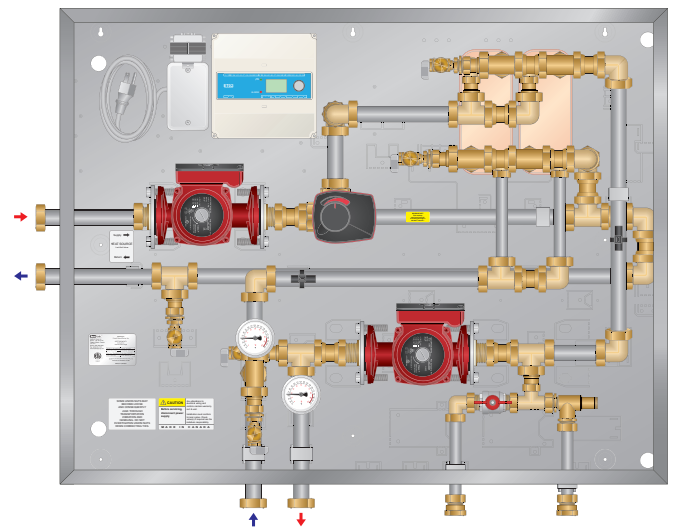
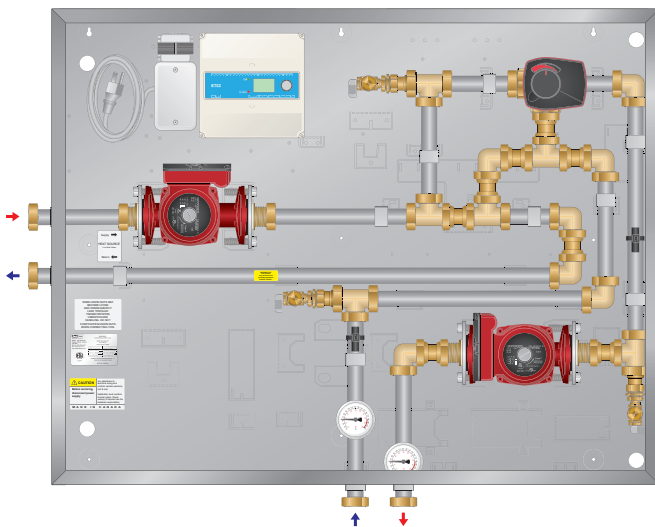
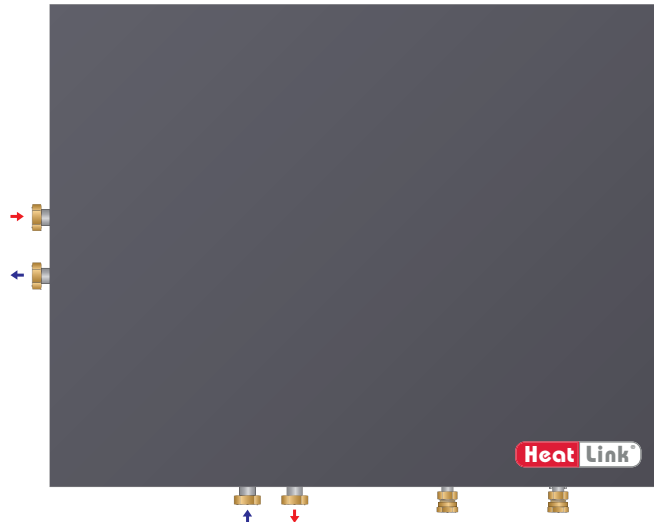


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Warnings

The zone control panel is for indoor use only and must be installed by a qualified installer/service technician. This product must be installed and operated in strict accordance with the terms set out in this manual and in accordance with the relevant requirements of the Local Authority Having Jurisdiction. Failure to comply will result in a void of warranty, and may also result in property damage, serious injury, or death.

Servicing

Prior to commencing installation of this panel it is necessary to read and understand all sections of this manual. The symbols below are used throughout this document to ensure proper operation of the panel, and your safety. Please pay attention to these symbols.



Warning
Possible Hazard



Warning
Live Power



Warning
Hot Pipes



Warning
Treated Water



In order to avoid injury or death, switch off the power to the panel prior to inspecting or making connections to the terminal strip.

Disclaimer

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Tools For Installation

- Level
- Screwdriver or power drill
- Flat head bit or Robertson Square Drive, #2
- Phillips head bit
- 2 adjustable wrenches (or 2× 40mm wrenches)

Function

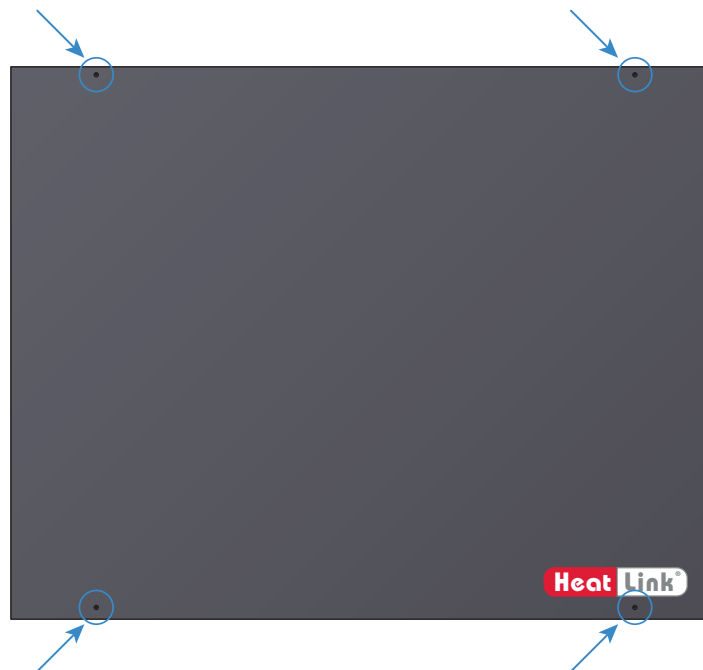
This snow melt panel provides mixing and distribution for outdoor snow and ice melting applications.

The effectiveness of the system is dependant on the system being designed and installed correctly. Proper consideration of factors such as BTU Loads, Outdoor Design Temperature, Differential Fluid Temperatures, Glycol Percentage, Head Loss, Flow Rates and transfer capacities of the heat emitters is critical. Once these factors have been considered and the system requirements determined, these can then be evaluated and compared to the panel capabilities (listed under Specifications on page 8 of this manual).

Note: This panel does not regulate or monitor the operating safety limit temperatures of the fluid leaving the heat source.

Unpacking

- Step 1** Examine carton for any damage that may have occurred during shipping. If damage is visible notify your courier and supplier immediately.
- Step 2** Open the carton by removing the staples.
- Step 3** Remove the cardboard spacers from the carton, then remove the panel from the carton. Lift the panel by the base, not the enclosure.
- Step 4** There are 4 screws holding the cover in place. They are located at the top left & right, and the bottom left & right of the cover. Remove and **keep** these 4 screws - they will be needed after installation is complete to re-secure the cover.
- Step 5** Remove the cover and place to one side.



- Step 6** Verify the following items:

SMP175SS-HEX, SMP300SS-HEX, and SMP300SS-HEX-H (with Heat Exchangers)

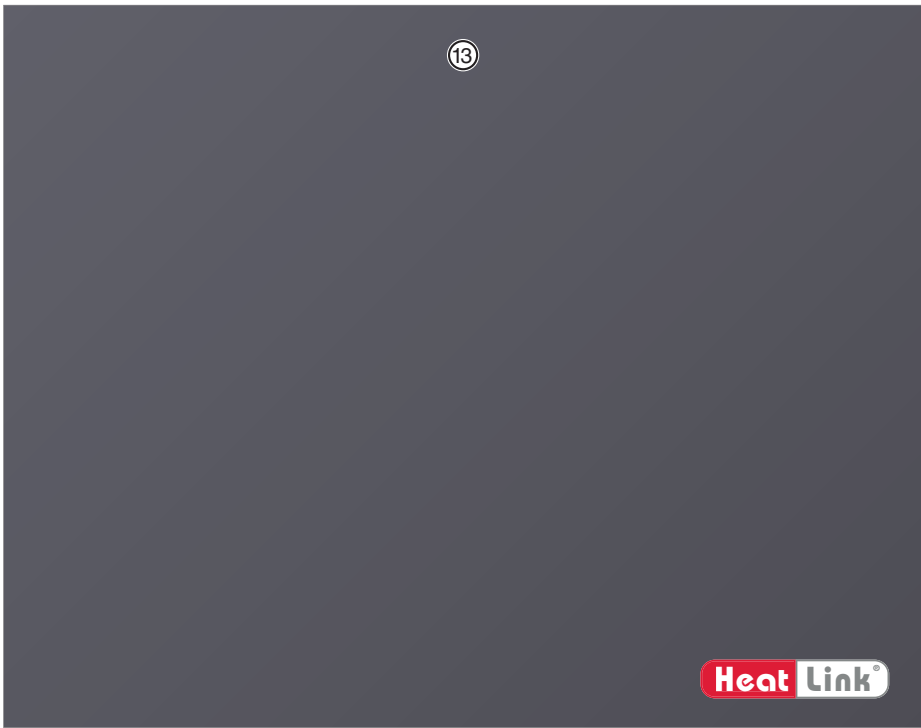
- Installation, Operation and Maintenance Manual
- (4) 1" MSBP x 1" FNPT Ball Valve
- (6) Mounting screws
- (2) 3/4" MBSP x 1" FNPT adapters
- (8) 3/4" rubber washers
- (8) 1" rubber washers

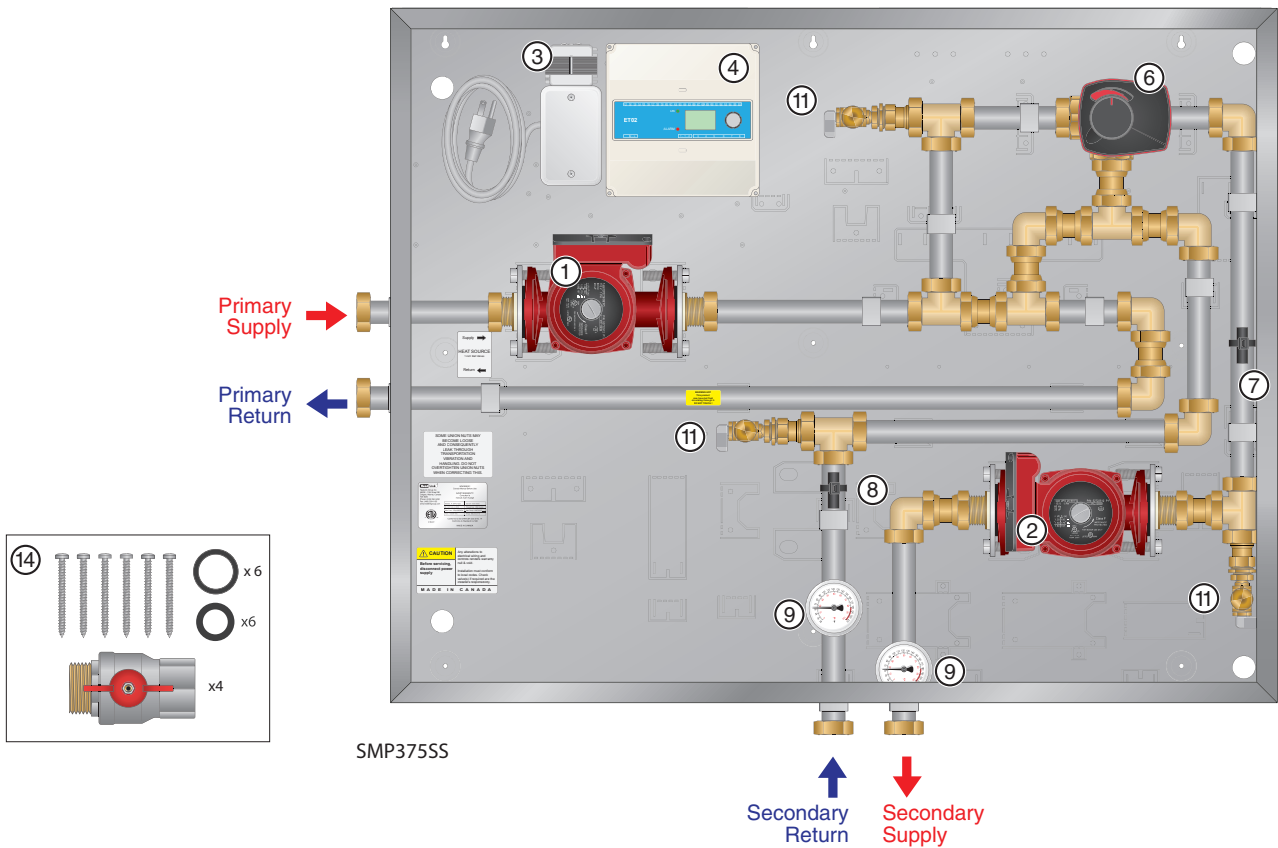
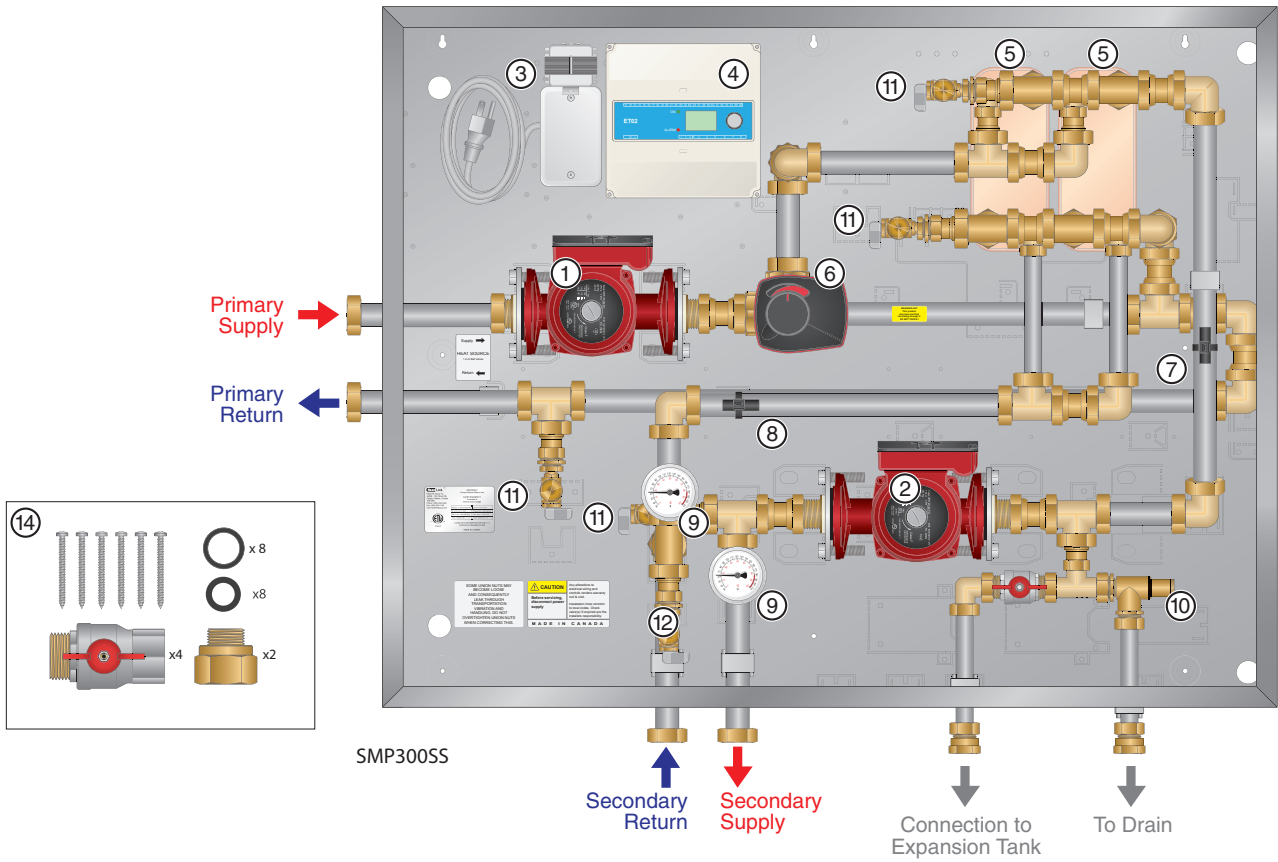
SMP375SS and SMP375SSH (without Heat Exchangers)

- Installation, Operation and Maintenance Manual
- (4) 1" MSBP x 1" FNPT Ball Valve
- (6) Mounting screws
- (8) 1" rubber washers
- (1) 3/4" rubber washer

Panel Components

#	Component	Part Number				
		SMP175SS-HEX	SMP300SS-HEX	SMP300SS-HEX-H	SMP375SS	SMP375SSH
①	Primary Circulator	PUMP2699	PUMP2699	PUMP2699	PUMP2699	PUMP2699
②	Secondary Circulator	PUMP2699	PUMP2699	PUMP26150	PUMP2699	PUMP26150
③	24Vac Transformer	-	-	-	-	-
④	System Controller	ETO2SMCNTR	ETO2SMCNTR	ETO2SMCNTR	ETO2SMCNTR	ETO2SMCNTR
⑤	Heat Exchanger	HTEX3820	HTEX3820	HTEX3820	n/a	n/a
⑥	3-way Valve	-	-	-	-	-
	Motorized Actuator	58132	58132	58132	58132	58132
⑦	Supply Sensor	ETF1899ASNS	ETF1899ASNS	ETF1899ASNS	ETF1899ASNS	ETF1899ASNS
⑧	Return Sensor	ETF1899ASNS	ETF1899ASNS	ETF1899ASNS	ETF1899ASNS	ETF1899ASNS
⑨	Temperature Gauge	76940	76940	76940	76940	76940
⑩	½" Safety Relief Valve	-	-	-	n/a	n/a
⑪	Drain and Fill Valve	-	-	-	-	-
⑫	Precipitation Sensor (sold separately)	DRVWSNS-SS	DRVWSNS-SS	DRVWSNS-SS	DRVWSNS-SS	DRVWSNS-SS
⑬	Enclosure	-	-	-	-	-
⑭	Accessory Pack	-	-	-	-	-
	¾" Washer	NTRWSH34	NTRWSH34	NTRWSH34	n/a	n/a
	1" Washer	NTRWSH1	NTRWSH1	NTRWSH1	NTRWSH1	NTRWSH1



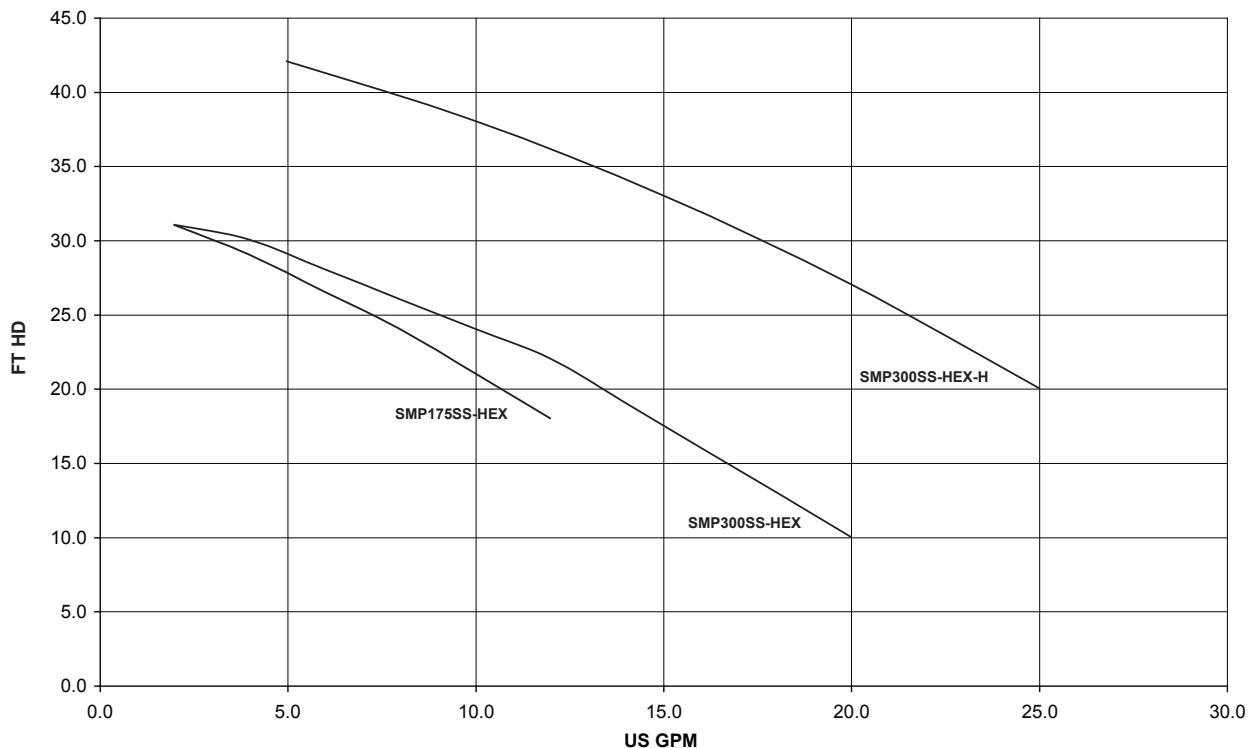


SMP Panel with Heat Exchanger Specifications

	SMP175SS-HEX	SMP300SS-HEX	SMP300-HEX-H
Listing	cETLus		
Conforms to	CAN/CSA-C22 No.14, UL508		
Dimensions	30.188"H x 38.343"W x 8.027"D		
Weight	93.5 lb	TBD	TBD
Nominal panel output * see conditions below	175,000 BTU	300,000 BTU	365,000 BTU
Max ambient temperature	120°F		
Max water temperature	200°F		
Temperature control range	50°F to 180°F		
Max allowable operating pressure on secondary side	100 psi		
Power supply: pre-wired on system controller	Module with 120v plug & 6' cord. Requires dedicated receptacle, 15 Amp, 120V, 60Hz, single phase.		
Primary circulator	Grundfos UPS 26-99		
Secondary circulator	Grundfos UPS 26-99		Grundfos UPS 26-150
Temperature control method	1-1/4" 3-Way diverting valve and motorized actuator, controlled by snow melt control.		
Mix Valve Cv	11.6		
Heat Exchanger	2x Single-wall brazed plate; 3x8-20	2x Single-wall brazed plate; 3x8-30	3x Single-wall brazed plate; 3x8-30
Auxiliary terminal	Yes, max 16A		
Piping	1" 304 stainless steel tubing		
Piping connections	1" FNPT		
Backplate and sides	Galvanized steel		
Cover	Powder coated steel		

Panel Output Conditions	SMP175SS-HEX		SMP300SS-HEX		SMP300SS-HEX-H	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
Fluid type	Water	50% glycol	Water	50% glycol	Water	50% glycol
Entering fluid temp (°F)	185.0	110.0	185.0	110.0	182.0	110.0
Exiting fluid temp (°F)	155.0	141.2	155.0	143.7	152.0	142.8
Flow rate (US gpm)	12.0	12.6	20.6	20.0	24.9	24.9
Headloss	4.1	-	7.0	-	4.1	-
Allowable pressure drop outside of panel (ft head)	-	18	-	10	-	20

FT HD Outside of Panel

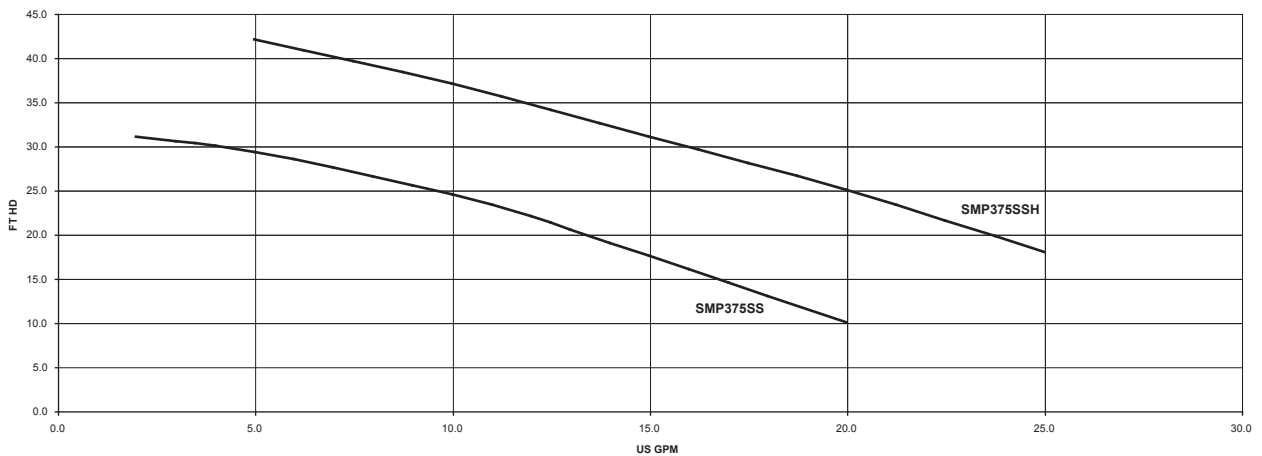


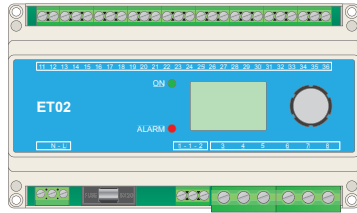
SMP Panel without Heat Exchanger Specifications

	SMP375SS	SMP375SSH
Listing	cETLus	
Conforms to	CAN/CSA-C22 No.14, UL508	
Dimensions	30.188"H x 38.343"W x 8.027"D	
Weight	75 lb	80 lb
Nominal panel output*	300,000 BTU	375,000 BTU
Nominal flow*	20 US gpm @ 40°F ΔT	25 US gpm @ 40°F ΔT
Nominal pressure drop outside of panel*	10 ft	18 ft
Max ambient temperature	120°F	
Max water temperature	200°F	
Temperature control range	50°F to 180°F	
Max allowable operating pressure on secondary side	100 psi	
Power supply: pre-wired on system controller	Module with 120v plug & 6' cord. Requires dedicated receptacle, 15 Amp, 120V, 60Hz, single phase.	
Primary circulator	Grundfos UPS 26-99	
Secondary circulator	Grundfos UPS 26-99	Grundfos UPS 26-150
Temperature control method	1-1/4" 3-Way diverting valve and motorized actuator, controlled by snow melt control.	
Mix Valve Cv	11.6	
Heat Exchanger	n/a	n/a
Auxiliary terminal	Yes, max 16A	
Piping	1" 304 stainless steel tubing	
Piping connections	1" FNPT	
Backplate and sides	Galvanized steel	
Cover	Powder coated steel	

* Based on 50% glycol in heating fluid.

SMP375SS and SMP375SSH FT HD Outside of Panel



Panel Component Specifications**System Controller**

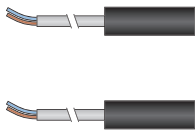
Based upon the feedback from the sensors for the system the controller will regulate the necessary supply fluid temperature that is required for the snow melt system by adjusting the control valve via motor actuator.

Refer to page 20 for instructions.

**Precipitation Sensor (sold separately)**

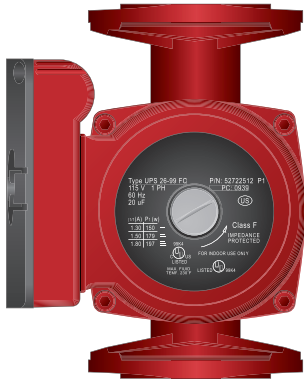
The SMP panel uses a precipitation sensor that is placed in the concrete to detect outdoor temperature and precipitation. Upon detection of either drop in temperature or precipitation, the snow melt system is started. The sensor should be installed as per installation instructions.

Detection:	Moisture and temperature
Mounting:	Outdoor surface
Cable length:	85 ft / 25 m
Enclosure rating:	IP 68
Ambient temperature:	-57 to 158°F / -50 to 70°C

**Supply and Return Sensors**

The supply and return fluid temperatures of the snow/ice melting system are monitored by the system supply and return sensors. The sensed temperature is fed back to the system controller which in turn aids in the regulation of the control valve.

Material:	Polycarbonate
Type:	NTC 12k
Range:	-20°C to 70°C
Typical accuracy (amb. = 25°C / 77°F):	
At 65°C =	3-4°C lower than the water temperature
At 40°C =	1-2°C lower than the water temperature
Response time ($T_{0.5}$):	150 sec.
Typical settling time:	15-20 min.



Circulator

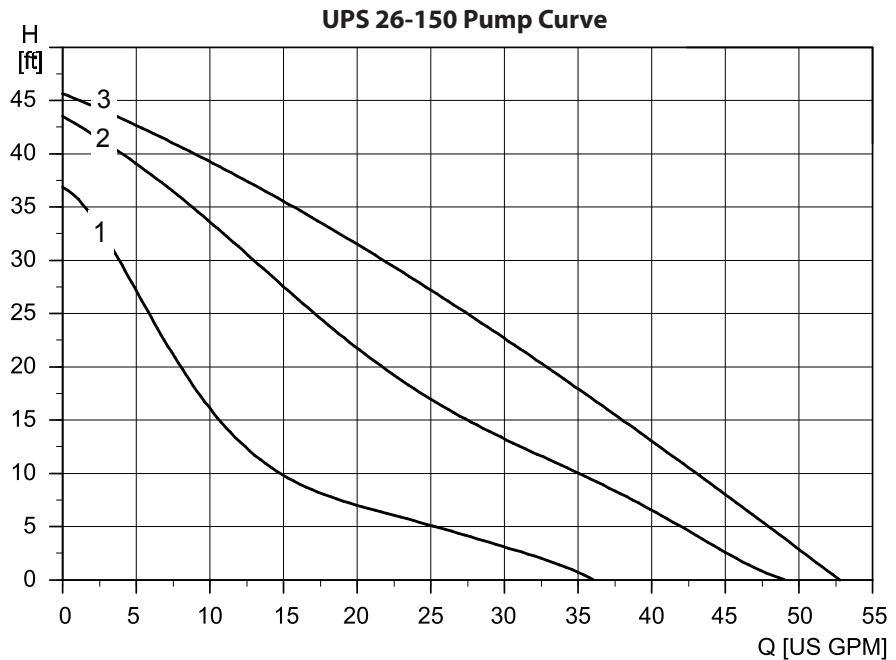
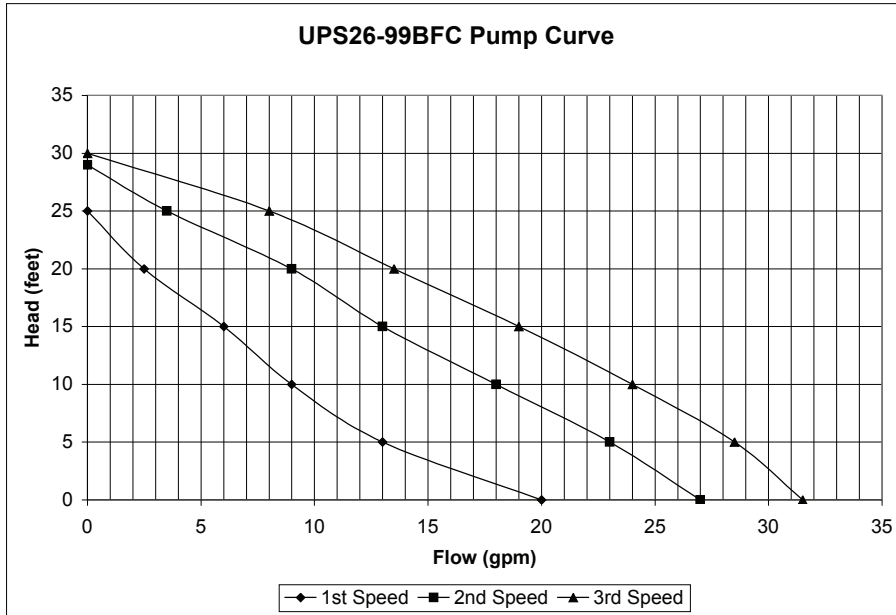
The circulator moves the heated fluid through the system when there is a call for heat from the system controller.

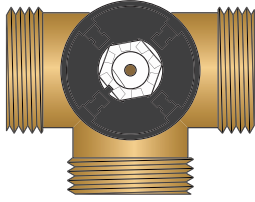
Pump Curve for Panel Circulator

Depending on the panel, the following pump curves apply.



The addition of glycol to the system will result in higher demand from the circulator due to the change in viscosity of the fluid.

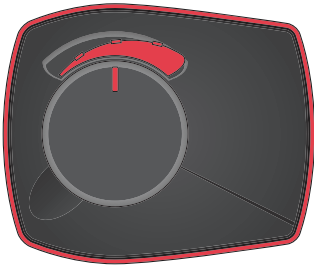


**Control Valve**

3-way brass mixing valve regulates the temperature in the hydronic system with the help of the electric motor actuator and system controller. May not be exactly as shown.

Specifications:

- Cv=11.6

**Motorized Actuator**

The motor actuator is mounted to the control valve and moves the valve appropriately to allow the heated fluid to enter. This actuator works in conjunction with the system controller.

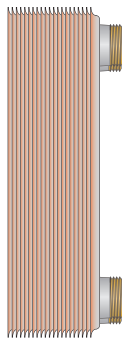
Specifications:

- 0-10V/0-20mA, 45-120s
- 24Vac/dc, 6Nm

Manual Operation of Motorized Actuator

NOTE: Motorized actuator should not be placed in manual mode for an extended period of time.

- Pull knob out on motorized actuator.
- Rotate knob clockwise or counter-clockwise.
- To return to automatic mode, push the knob in.

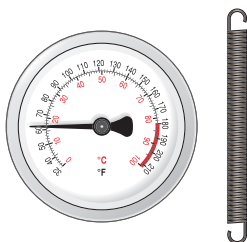
**Heat Exchanger (SMP175-HEX, SMP300SS-HEX and SMP300SS-HEX-H only)**

The brazed plate heat exchanger allows the transfer of heat from fluid on one side to fluid on the other side of the heat exchanger. This component also provides a separation between the two fluids so mixing does not occur.

Specification:

- Stainless steel plates copper brazed together
- Single-wall brazed plate

Fluid pH should be maintained within a range of 6.8-8.0

**Thermometer (76940)**

The pipe mounted thermometer reads the supply fluid temperature.

Specifications:

- Temperature range of 32-210°F (0-100°C).

Mounting

Prior to mounting the panel, ensure the wall is capable of supporting the weight of the panel.
Ensure that one 115V receptacle is within reach of the 6-foot cord and plug.

Step 1 Determine the locations and distance between the wall studs. With a level at a minimum height of 5' from the floor draw a straight line on the wall and mark the stud locations. If the panel cannot be secured directly to the studs, or suitable backing boards, plywood may need to be installed behind the panel to properly secure it in place.

Step 2 Screw two of the supplied mounting screws into the wall studs (or backing plywood) 11" from the top of desired height, and 16" apart, leaving 1/4" of screw out from the wall.

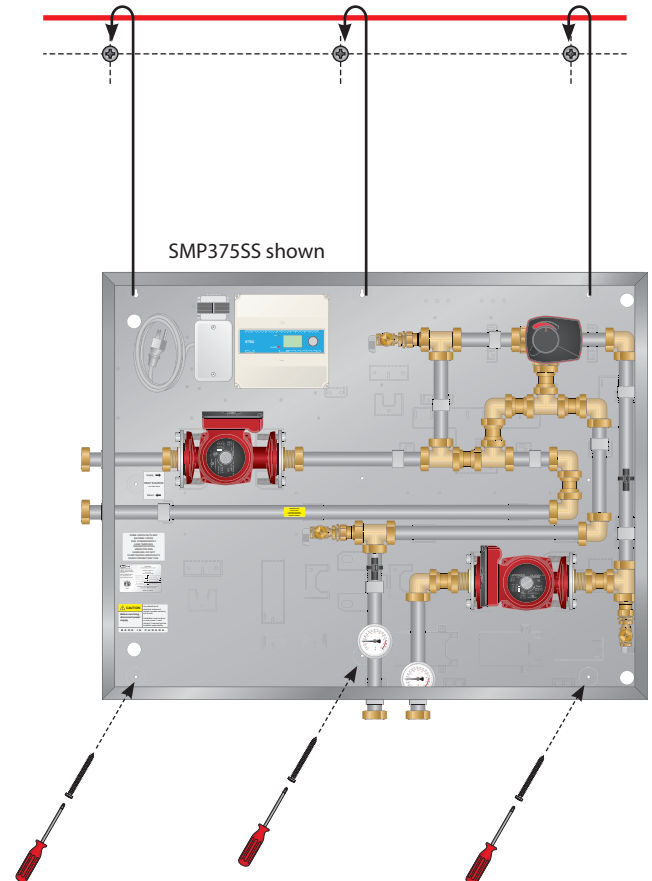
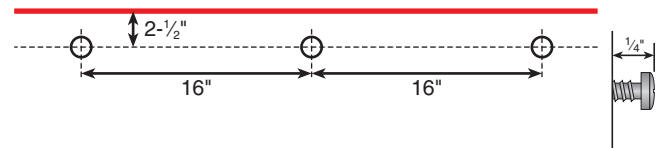
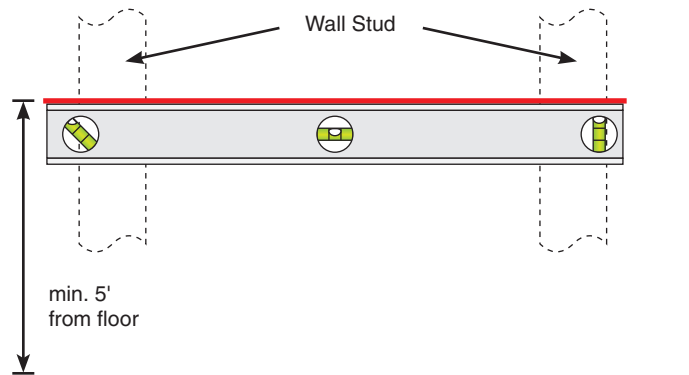
Step 3 Lift and place the panel onto the mounting screws, using the keyhole slots.



This panel is heavy; 2-3 person lift required.

Step 4 Screw the six remaining mounting screws into the holes around the panel and tighten the first two screws.

Step 5 Before replacing the enclosure, refer to pages 19-25 for fill and purge, and proper wiring instructions.



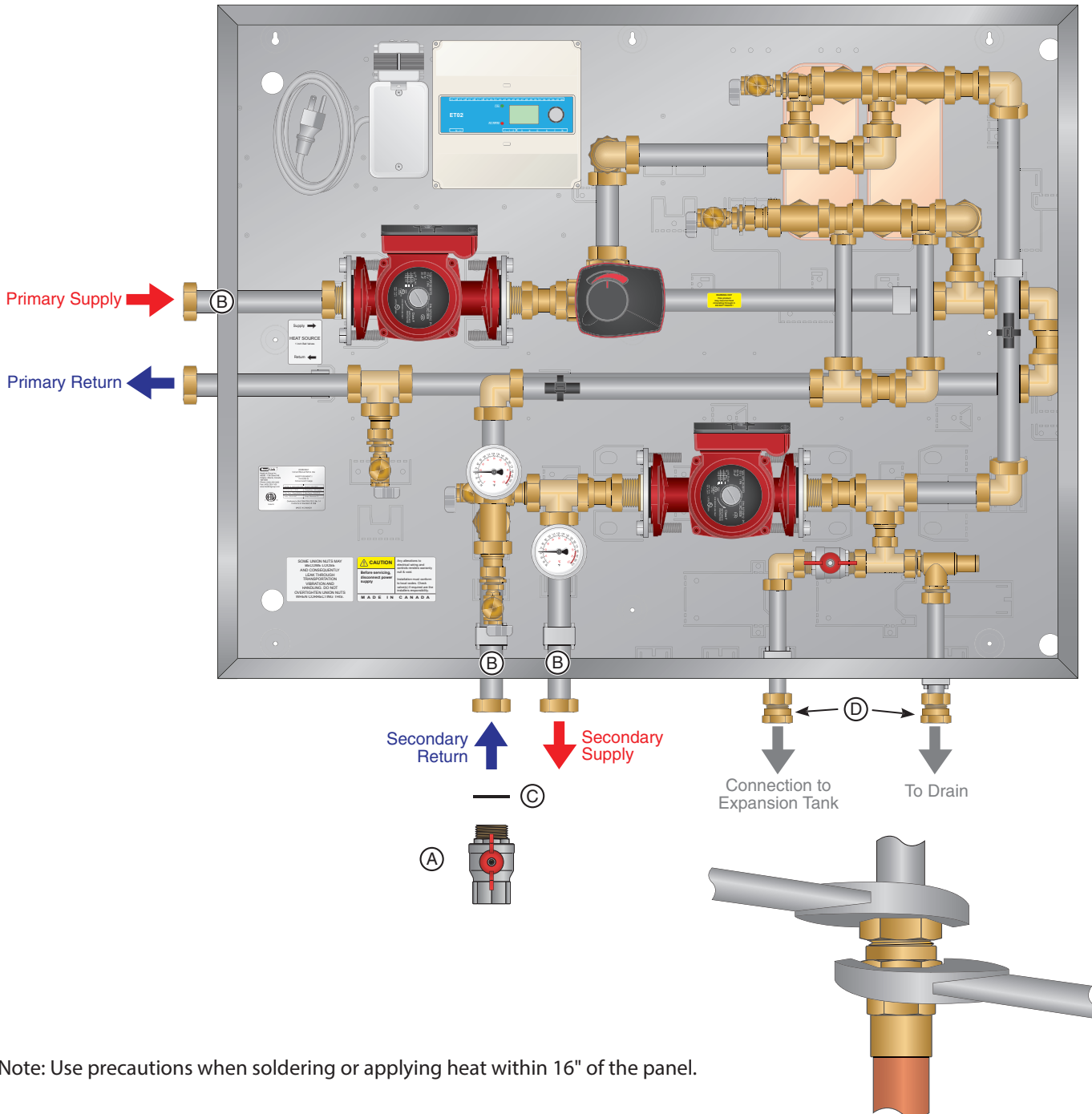
Piping Hookup

Connect each of the valve assemblies (A) to the supply and return piping (B) on the panel, using the supplied 1" washers (C). Do not over-tighten the panel connections, as this will damage the rubber washers.

For SMP300SS install the 3/4" MSPP x MNPT (D) fittings using the supplied 3/4" washers on the Expansion Tank and Drain pipes.

You will need 2x 30mm, or large adjustable or smooth jaw pipe wrenches to tighten the fittings.

SMP300SS shown



Note: Use precautions when soldering or applying heat within 16" of the panel.

Do not over-tighten brass nuts!

Fill And Purge (SMP without Heat Exchanger)

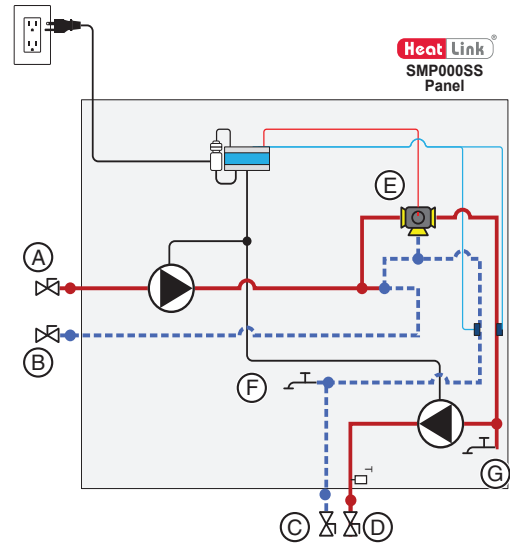
The following steps are recommended in order to fill the panel with water and purge entrained air once piping is completed, and before activation of the panel.



The discharged system fluid from the fill and purge process is not for consumption or washing.

Note: Additional purging steps may be required for the rest of the hydronic system.

- Step 1** Ensure the panel is **not** plugged in.
- Step 2** Fully open the mixing valve (E). (Turn the adjustment knob clockwise to the fully open position.)
- Step 3** Fully close valves (A), (B), (C), (D), and (G). Fully open valve (F).
- Step 4** Attach a purge hose (not included) to (F) and a fill hose (not included) to (G). Open valve (G).
- Step 5** When exiting water from (F) is free of bubbles, close valve (F), then valve (G).
- Step 6** Remove hoses from drain valves and full open valves (A), (B), (C), and (D).
- Step 7** Check for leaks at connections. If any leaks are found, use a back-up wrench and carefully tighten until leak stops. **Do not overtighten.**



Fill And Purge (SMP with Heat Exchanger)

The following steps are recommended in order to fill the panel with water and purge entrained air once piping is completed, and before activation of the panel.



The discharged system fluid from the fill and purge process is not for consumption or washing.

Note: Additional purging steps may be required for the rest of the hydronic system.

Note: Isolation and drain valves are not included with the panel, but are necessary to properly fill and purge the panel, and to isolate the panel for service.

Step 1 Ensure the panel is **not** plugged in.

Step 2 Fully open the mixing valve (E). (Turn the adjustment knob clockwise to the fully open position.)

Step 3 Fully close valves (B), (H), and (G).
Fully open valves (A) and (F).

Step 4 Attach a purge hose (not included) to (F) and a fill hose (not included) to (G). Open valve (G).

Step 5 When exiting water from (F) is free of bubbles, close valve (F), then valve (G).

Step 6 Remove hoses from drain valves and full open valves (B) and (H).

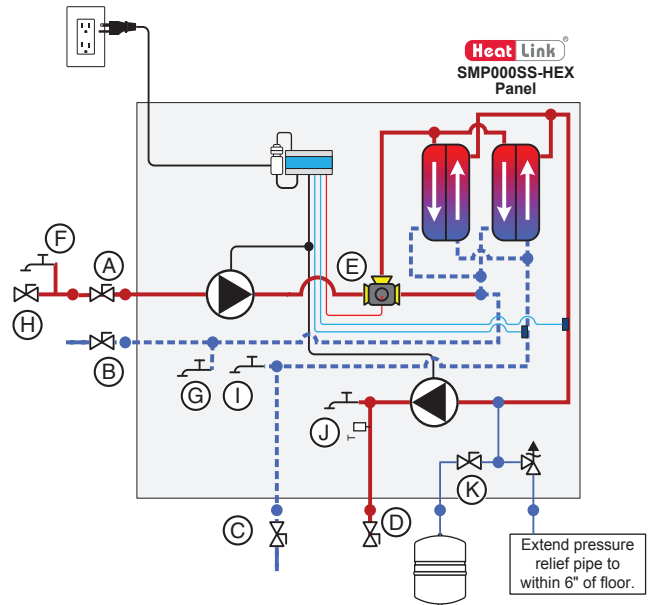
Step 7 Fully close valves (C), (D), and (J).
Fully open valves (I) and (K).

Step 8 Attach a purge hose (not included) to (I) and a fill hose (not included) to (J). Open valve (J).

Step 9 When exiting water from (I) is free of bubbles, close valve (I), then valve (J).

Step 10 Remove hoses from drain valves and fully open valves (C) and (D).

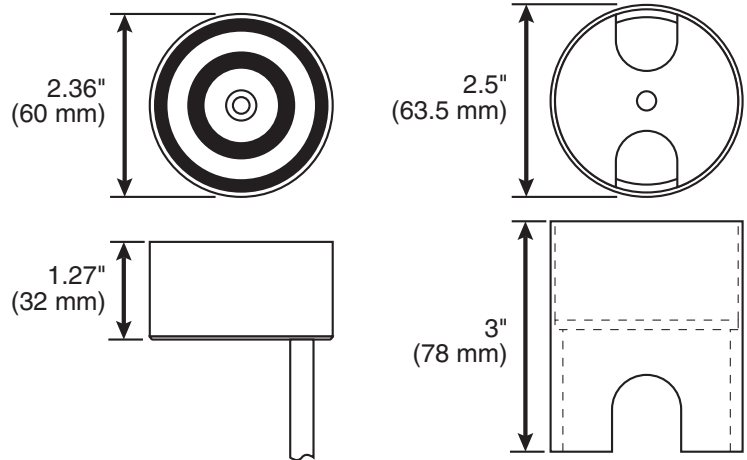
Step 11 Check for leaks at connections. If any leaks are found, use a back-up wrench and carefully tighten until leak stops. **Do not overtighten.**



Precipitation Sensor Installation

Technical data

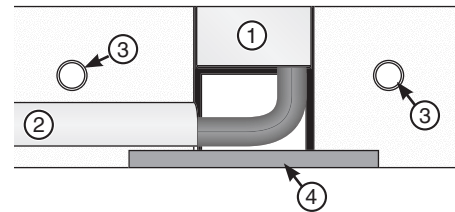
Detection:	Moisture and temperature
Mounting:	Outdoor surface
Cable length:	85 ft / 25 m
Enclosure rating:	IP 68
Ambient temperature:	-57 to 158°F / -50 to 70°C



Installation in a level outdoor surface

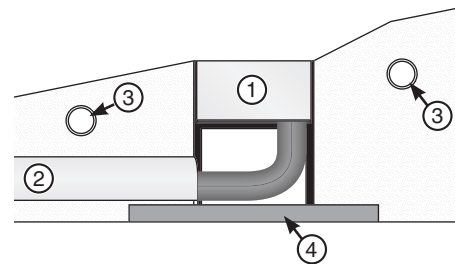
The ice sensor must be installed within the area to be heated. The sensor surface must form a horizontal plane with the surfacing. The sensor surface must remain exposed, not covered.

The ice sensor must not project out of the surfacing. It may be recessed a few millimetres deeper into the surfacing so that draining melt water can collect on the sensor surface.



Installation in a sloping outdoor surface

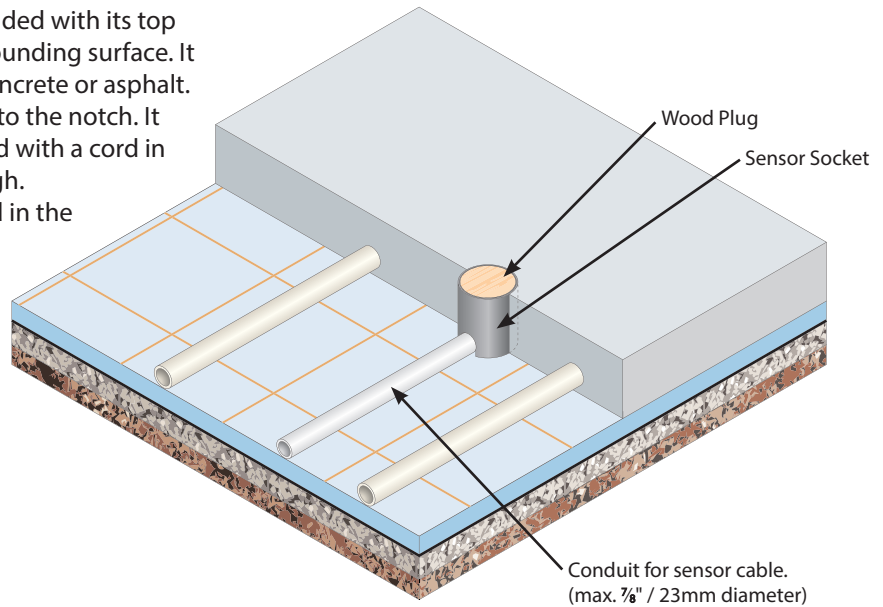
For inclined outdoor areas, the ice sensor must be installed horizontally. If the ice sensor is horizontal, it ensures that snow or melt water can collect on sensor surface.



- ① DRWVSNS-SS sensor
- ② Conduit for sensor cable
- ③ PEX Tubing
- ④ Paving slab in case of soft substrate

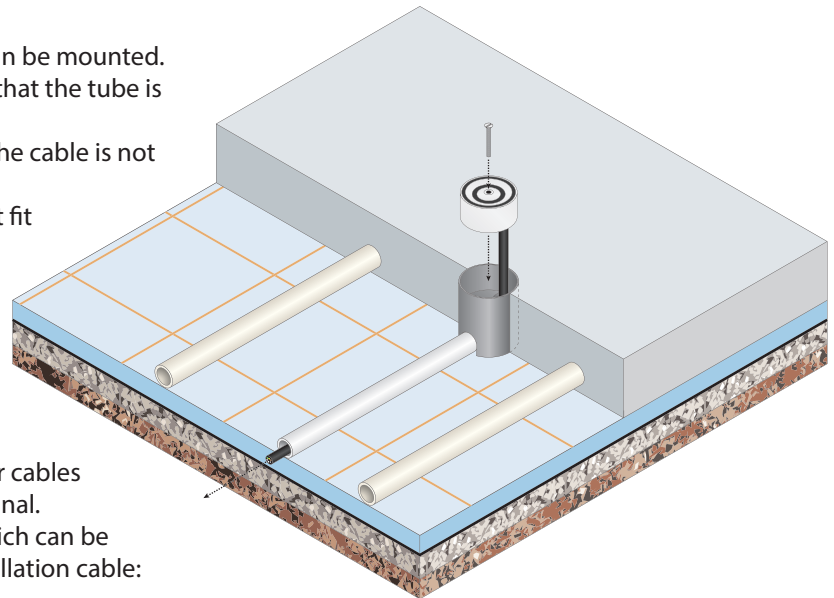
Mounting of Sensor Socket

The sensor should be mounted in an open unsheltered location away from walls, etc. The tube must be embedded with its top completely horizontal and flush with the surrounding surface. It should be embedded in a hard surface, e.g. concrete or asphalt. A conduit, up to \varnothing 23 mm, must be inserted into the notch. It is recommended that the conduit be equipped with a cord in order to make it easier to pull the cable through. The accompanying wood plug must be placed in the hole before the concrete or asphalt is applied. Ensure that it is securely embedded in relation to the expected surface load.



Mounting of Sensor

After the concrete/asphalt has cured, the sensor can be mounted. Remove the wood plug from the tube and ensure that the tube is clean. Pull the cable through the conduit, ensuring that the cable is not damaged on any sharp edges. Place the sensor in the tube. The sensor cable must fit easily through the hole in the bottom. The accompanying screw must be fitted in the middle of the sensor and securely tightened.



Mounting of Sensor Cable

The cable must be mounted in accordance with applicable local regulations. The cable must never be installed parallel to power cables as electrical interference may distort the sensor signal. The sensor is supplied with 82.5 ft (25 m) cable which can be extended up to 660 ft (200 m) using standard installation cable: $6 \times 1.5 \text{ mm}^2$. The total resistance of the cable must be less than 10 ohm.

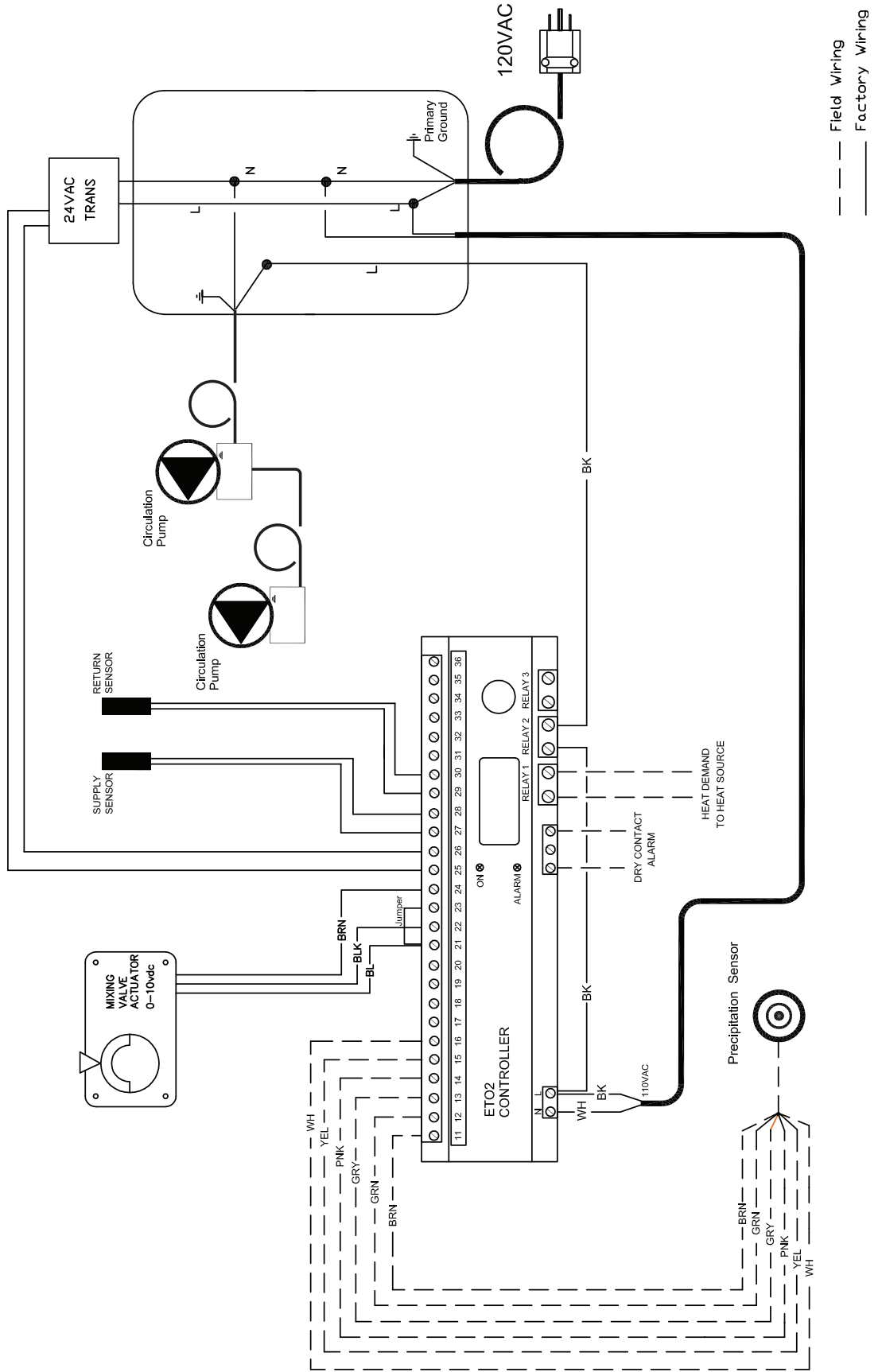
Panel Wiring



- Wiring should be done by qualified electrician and should meet local codes and jurisdictions.

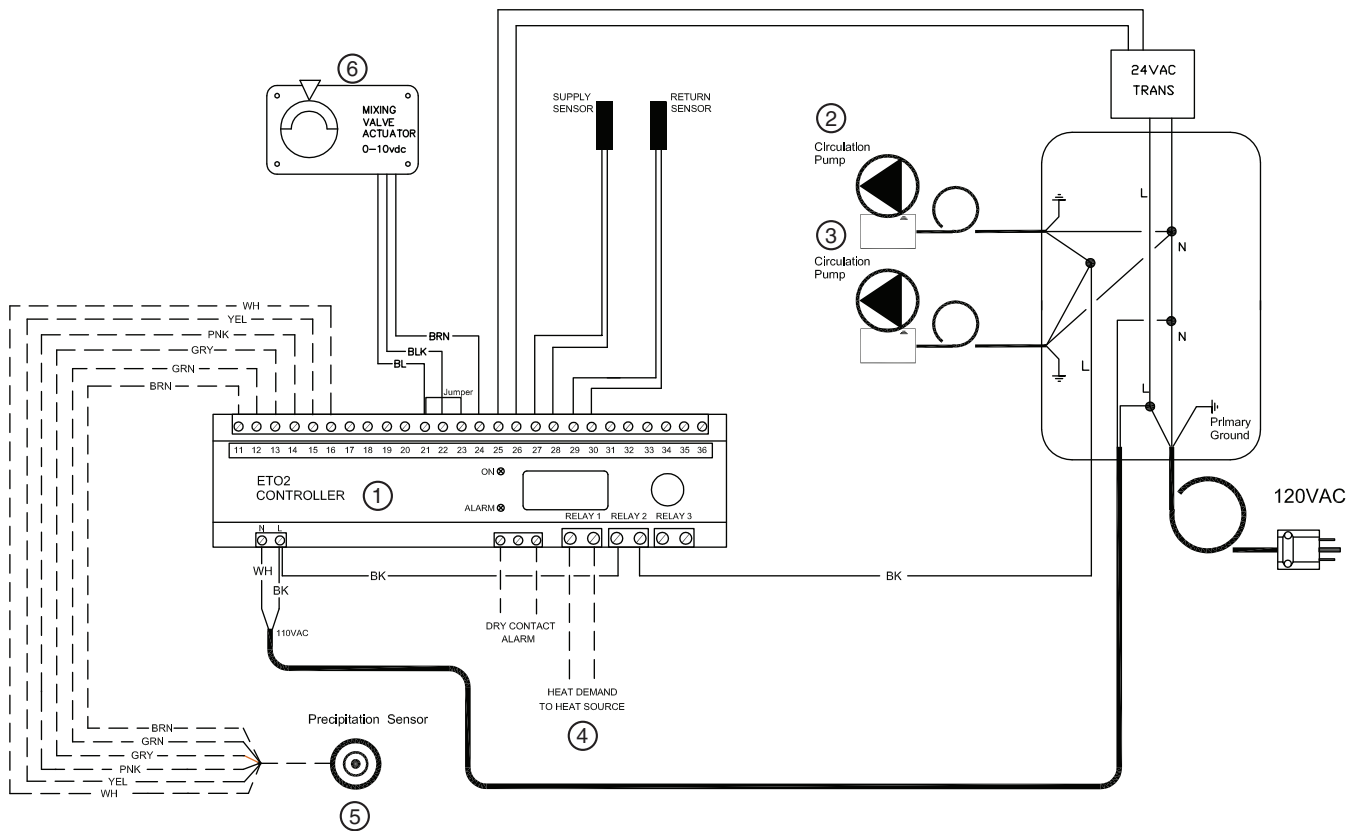
Auxiliary Contacts

The auxiliary contact set is dry, meaning no supply of power is present at the terminal. The maximum allowable load is 1.5A. The auxiliary dry contact located on the terminal is to switch another device (ie. the heat source) when there is a call for heat from any zone.



Panel Control Sequence

1. When the Precipitation Sensor ⑤ detects temperature below SET TEMP 1 (warm weather shutdown), the System Controller ① will activate. It will start the Primary ② and Secondary ③ Circulators, close the Auxiliary Terminals ④ for 1 minute every 15 minutes to check the return water temperature. If the return water temperature is below the minimum return water temperature (MIN WATER) the System Controller will start the Primary ② and Secondary ③ Circulators, close the Auxiliary Terminals ④, and open the mixing valve ⑥ to increase the return water temperature to the required level (MIN WATER).
2. When the Precipitation Sensor ⑤ detects snow fall, the System Controller ① will start the Primary ② and Secondary ③ Circulators, close the Auxiliary Terminals ④, and open the mixing valve ⑥ to increase the flow temperature to the maximum supply water temperature (MAX WATER). When no more snow is detected by the Precipitation Sensor ⑤, the System Controller ① continues to operate the system for an additional user adjustable period of time (default 2 h; AFTERRUN 1).
3. When the Precipitation Sensor ⑤ detects temperature below OFF TEMP 1 (cold weather cutoff), the System Controller ① will be in standby mode.

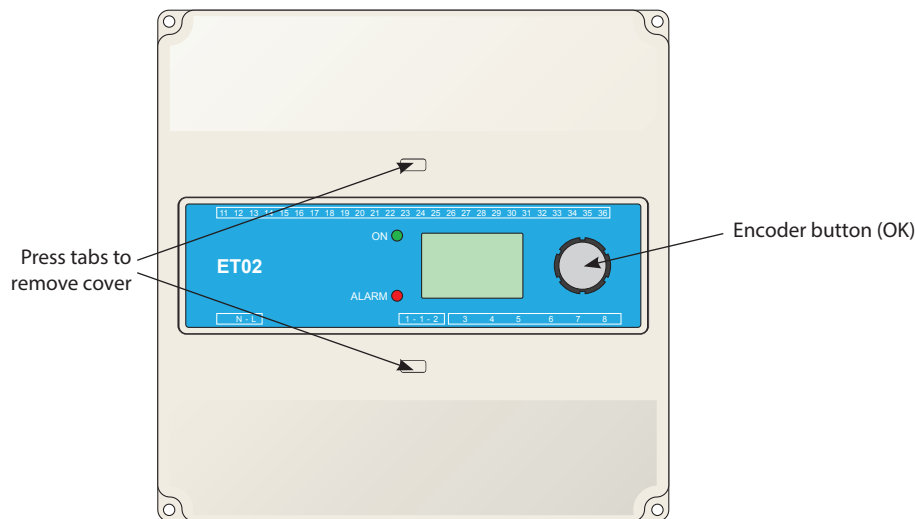


System Controller Instructions

The system controller has been setup at the factory. Minimal or no adjustments should be required for operation.

Glossary:

Zone 1, 2:	Independent heating zones in which ice and snow can be melted. SMP panel only uses Zone 1.
Encoder button:	Button which can be turned or pressed to easily configure the settings.
ETOG:	DRVWSNS-SS embedded sensor for detecting moisture and temperature.
ETOR:	Not used (Gutter sensor for detecting moisture.)
ETF:	Not used (Outdoor sensor for detecting temperature.)
Y/Δ:	Not used (2-stage control of electric heating systems.)
Afterrun:	The heat provided by the system for a specified length of time after the moisture/temperature signal has been eliminated by a heating cycle.



Operation

ETO2 system controller is equipped with an easily operated encoder button (press and turn) and a display which describes the current situation. The display is backlit and is illuminated by pressing the encoder button (OK). The illumination is automatically switched off after 30 seconds.

Press the encoder button and the main menu will be shown on the display. Turn the button to scroll through the options. Not all the options are shown on the display at once, but they can be accessed by turning the encoder button. Press encoder button to select a highlighted option.

Startup (this has already been done at the factory)

SELECT SCALE:	
CELSIUS	
FAHRENHEIT	

When the ETO2 system controller is switched on for the first time, Celsius or Fahrenheit must be selected. Turn the encoder button until the desired temperature scale is highlighted. Press encoder button to set selection.

SENSOR 1:	
ETOG	
ETOR	

SENSOR 1 is shown on the display, allowing the type of sensor connected for input 1 to be selected:

ETOG: DRVWSNS-SS embedded sensor
 ETOR: Not applicable (Gutter sensor + outdoor sensor)
 Press encoder button to set selection.

SENSOR 2:	
OFF	
ETOG	

SENSOR 2 is then shown on the display, allowing the type of sensor connected for input 2 to be selected. If no sensor is connected for input 2, OFF must be selected.

Press encoder button to set selection.

OUTDOOR SENSOR	
OFF	
ETF	

Select if outdoor sensor ETF is connected terminals 31-32. If none sensor ETF is connected, OFF must be selected. Press encoder button to set selection.

APPLICATION:	
ELECTRIC 1-ZONE	
ELECTRIC 2-ZONE	
ELECTRIC 2-STEP	
WATER BASED	

Select the application type by turning the encoder button and pressing OK.

ELECTRIC 1-ZONE : 1 zone electric/heating control/simple water based
 ELECTRIC 2-ZONE: 2 zones individual electrical heating control/simple waterbased
 ELECTRIC 2-STEP : 2 stage electric heating control (Y/Δ) for 1 zone.
 WATERBASED: 1 zone waterbed heating control with supply water control.

Select the appropriate option and press OK. The system is now set up and will begin operating fully automatically in accordance with the pre-configured standard program, see **FACTORY SETTINGS**. Alternative settings can also be made, see **SETTINGS**.

ZONE 1 HEAT	OFF
ZONE 2 HEAT	OFF
AFTERRUN 1	0.00
AFTERRUN 2	0.00
STANDBY	OFF

Status and afterrun data for zones 1 and 2 are now shown on the display.

Main Menu

ZONE 1	OFF
ZONE 2	OFF
SENSOR 1	##.#°C
SENSOR 2	##.#°C
MOIST 1	NO
MOIST 2	NO
OUT. TEMP	##.#°C
SUPPLY W.	##.#°C
RETURN W.	##.#°C
ALARM	NO
SHOW INFO	
SETUP	
RESTART	
EXIT	

Display Texts

ZONE 1	OFF	Heating zone 1 active (ON) or inactive (OFF)
ZONE 2	OFF	Not used. Heating zone 2 active (ON) or inactive (OFF)
SENSOR 1	##.#°C	Sensor 1 temperature, only with ETOG sensor
SENSOR 2	##.#°C	Not used. Sensor 2 temperature, only with ETOG sensor
MOIST 1	NO	Sensor 1 moisture
MOIST 2	NO	Not used. Sensor 2 moisture
OUT. TEMP	##.#°C	Not used. Outdoor temperature, ETF
SUPPLY W.	##.#°C	Supply water temperature, only water-based application
RETURN W.	##.#°C	Return water temperature, only water-based application
ALARM	NO	Fault message, fault type will be displayed. Red LED on front of unit will flash.
SHOW INFO		Application Info
APP:	WATER	Application type: electric or water-based heating
SW VERSION	1.00	Software version
SENSOR 1	ETOG	Sensor type, sensor 1
SENSOR 2	OFF	Not used. Sensor type, sensor 2
SENSOR ETF	OFF	Not used. ETF sensor connected
EXIT		Return to main menu

SETUP

Settings

Please note that incorrect sensor setup may lead to insufficient ice and snow melting.

FORCE HEAT OFF

Manual start of forced heat. Press OK and select ON to start Forced heat. ETO2 controller will heat in the pre-programmed afterrun time, see AFTERRUN 1 and 2.

SELECT SCALE C

Whether temperature is to be displayed in Celsius (C) or Fahrenheit (F) can be selected here. Select the required scale and press OK. Press OK to return to the SETUP menu.

SET TEMP 1 5.0C

Set temperature to Zone 1: The maximum temperature at which ice and snow should be melted can be set here (Warm Weather Shut Down). Set the required temperature and press OK.

SET TEMP 2 3.0C

Not used. Set temperature to Zone 2: The maximum temperature at which ice and snow should be melted can be set here. Set the required temperature and press OK.

OFF TEMP 1 -10.0C

Lowest operating limit Zone 1 : From set temperature to lowest operating limit, the ETO2 will operate in normal mode (Cold Weather Cut Off). Below this temperature it will be in stand by mode. To change the OFF temperature, press OK and turn the encoder button to the desired value, confirm with OK.

OFF TEMP 2 -10.0C

Not used. Lowest operating limit zone 2 can be set here. To change the OFF temperature press OK and turn the encoder button to the desired value, confirm with OK.

AFTERRUN 1 2:0

Afterrun time Zone 1: An afterrun duration of between 0 and 18 hours can be set here. The system will continue to provide heat for the specified time after the moisture/temperature signal has been eliminated by a heating cycle. Use the encoder button to set the required afterrun time and press OK.

AFTERRUN 2 2:0

Not used. Afterrun time Zone 2: An afterrun duration of between 0 and 18 hours can be set here. Use the encoder button to set the required afterrun time and press OK.

OFFSET T1 0.0C

Zone 1 temperature can be calibrated here. The temperature recorded by the ETOG sensor can be adjusted so that the exact temperature is displayed on ETO2. Measure the temperature beside the sensor using a thermometer. Adjust the necessary offset using the encoder button. Press OK.

OFFSET T2 0.0C

Not used. Zone 2 temperature can be calibrated in the same way here. Adjust the necessary offset using the encoder button. Press OK.

OFFSET OUT. 0.0C

Not used. Outdoor temperature can be calibrated here. The temperature recorded by the ETF outdoor sensor can be adjusted so that the exact temperature is displayed on ETO2. Measure the temperature beside the sensor using a thermometer. Adjust the necessary offset using the encoder button. Press OK.

MIN WATER 5.0C

The minimum return water temperature can be set here. Set the required minimum temperature and press OK. This menu option is only available when water-based heating is used.

MAX WATER 55.0C

The maximum supply water temperature can be set here. Set the required maximum temperature and press OK. This menu option is only available when water-based heating is used.

SENSOR HEAT OFF

In special options or extreme cold weather the sensor heat can be selected on continuously. Select ON and press OK.

MOIST CTRL ON

The moist control on sensor can switches off here. The thermostat will only control by the set temperature, see SET TEMP. Select OFF for switch off the moist control and press OK.

FACTORY RESET

All ETO2 factory settings can be restored here. Selecting this option deletes all customized settings.

REINSTALL

Whether setup failure in startup menu, or new hardware connection has been done, the primary setup must be changed in STARTUP menu. Select PASSWORD and turn the encoder button to the factor code (1202) The controller will then return to the startup menu, see STARTUP.

**REINSTALL
PASSWORD XXXX**

EXIT

Select this option and press OK to return to the main menu.

RESTART

Restart

When changing the settings or require a new process start, the ETO2 can be restarted in this menu. Keeping your current settings. The ETO2 will go to the initial status display.

Factory Settings

Setup	Factory Settings	SMP Panel Settings	Own Settings
Application	Electric	Water Based	
Zone 1	ETOG	ETOG	
Zone 2	OFF	OFF	
Select scale	Celsius	Celsius	
Afterheat time Zone 1	2.00 hours	2.00 hours	
Afterheat time Zone 2	2.00 hours	2.00 hours	
Temp. offset Zone 1	0.0°C / 0.0°F	0.0°C / 0.0°F	
Temp. offset Zone 2	0.0°C / 0.0°F	0.0°C / 0.0°F	
Temp. offset ETF	0.0°C / 0.0°F	0.0°C / 0.0°F	
Set temperature	3.0°C / 37.4°F	5.0°C / 41.0°F	
OFF temperature	OFF	OFF	
Min. water temperature	5°C / 41°F	5°C / 41°F	
Max. water temperature	55°C / 131°F	55°C / 131°F	

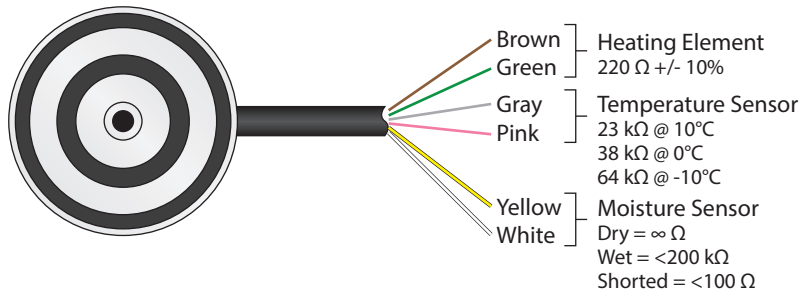
Troubleshooting

Problem	Check / Verify	Possible Cause
Low Temperature Within Snow Melt System (Snow and ice not melting)	Water on the snow/ice detector.	If the snow/ice detector is dry, it may need to be relocated.
	Outdoor temperature is above SET TEMP 1.	System may be in Warm Weather Shut Down. Increase SET TEMP 1.
	Outdoor temperature is below OFF TEMP 1.	System may be in Cold Weather Cut Off. Decrease OFF TEMP 1.
	The panel fails to turn on.	The panel may not be powered. Check if the power module is in the ON position and there is power to the panel.
	The motor actuator fails to open during a call for heat.	The motor actuator may have been left in a manual position, see page 12.
	Without power to the panel take an Ohm reading across each of the sensors. See Testing the Sensors on the next page.	A sensor may be defective. Replace sensor.
	Low supply mixed fluid temperature.	Adjust the MIN WATER setting on the system controller appropriately.
	Wiring from heat source to snow melt panel.	Check that the wiring is done properly. Consult qualified electrician prior to alteration of wiring between heat source and snow melt panel.
	Output of heat source is unable to meet demand of the required system.	Compare output of heat source to the requirements of the snow melting system.
	Circulator is not on during a call for heat. (Use a stethoscope or similar device to verify)	The system controller or circulator may be defective or the cut off temperature is not set properly.
Excessive High Temperature Within Snow Melt System	Check current settings of the system controller.	Adjust the settings on the system controller appropriately.
	High supply mixed fluid temperature.	Adjust the MAX WATER setting on the system controller appropriately.
	The motor actuator remains open after the thermostat is satisfied.	An obstruction inside the valve is not allowing the actuator to fully close or the system controller is still calling for heat.

Testing the Sensors

Precipitation Sensor

Measure resistance between the Precipitation Sensor wires.



Supply and Return Sensors

Measure resistance between the sensor wires and compare to the NTC 12k resistance table below.

Celsius	Fahrenheit	Resistance
-20°C	-4°F	112246Ω
-10°C	14°F	63929Ω
0°C	32°F	37942Ω
5°C	41°F	29645Ω
10°C	50°F	23364Ω
11°C	51.8°F	22300Ω
12°C	53.6°F	21292Ω
13°C	55.4°F	20335Ω
14°C	57.2°F	19428Ω
15°C	59°F	18567Ω
16°C	60.8°F	17750Ω
17°C	62.6°F	16974Ω
18°C	64.4°F	16237Ω
19°C	66.2°F	15537Ω
20°C	68°F	14871Ω
21°C	69.8°F	14238Ω
22°C	71.6°F	13636Ω
23°C	73.4°F	13064Ω

Celsius	Fahrenheit	Resistance
24°C	75.2°F	12519Ω
25°C	77°F	12000Ω
26°C	78.8°F	11506Ω
27°C	80.6°F	11035Ω
28°C	82.4°F	10587Ω
29°C	84.2°F	10159Ω
30°C	86°F	9752Ω
35°C	95°F	7978Ω
40°C	104°F	6569Ω
45°C	113°F	5442Ω
50°C	122°F	4535Ω
55°C	131°F	3800Ω
60°C	140°F	3201Ω
70°C	158°F	2306Ω
80°C	176°F	1692Ω
90°C	194°F	1263Ω
100°C	212°F	958Ω

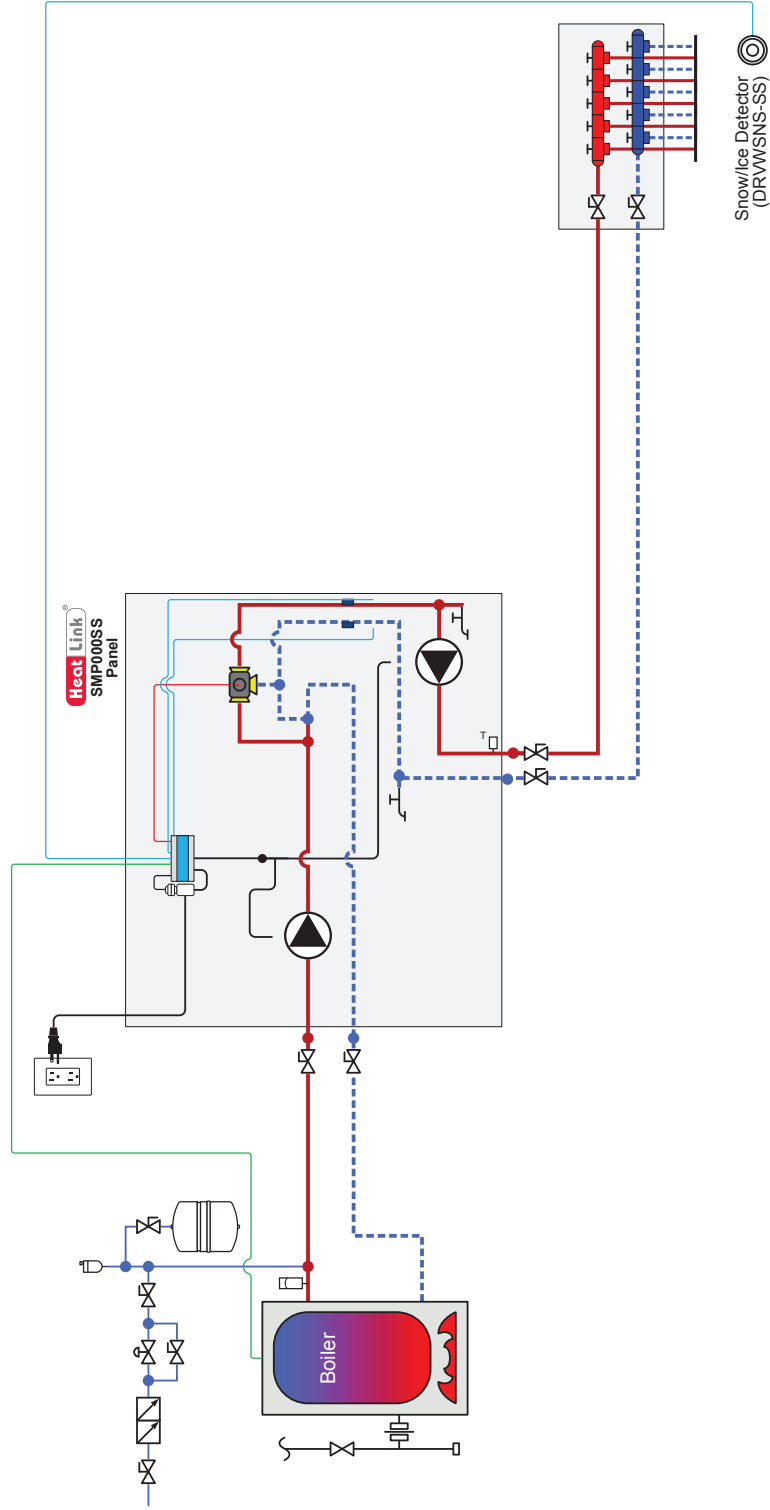
Maintenance

Yearly maintenance should be done on the panel prior to each heating season to ensure the efficient and accurate operation of the panel.

Complete the following check list:

- Check and/or replenish the appropriate amount of system antifreeze solution required for the snow/ice melting system.
- Manually override the system controller to turn on the circulator to verify if it starts, via stethoscope or similar device.

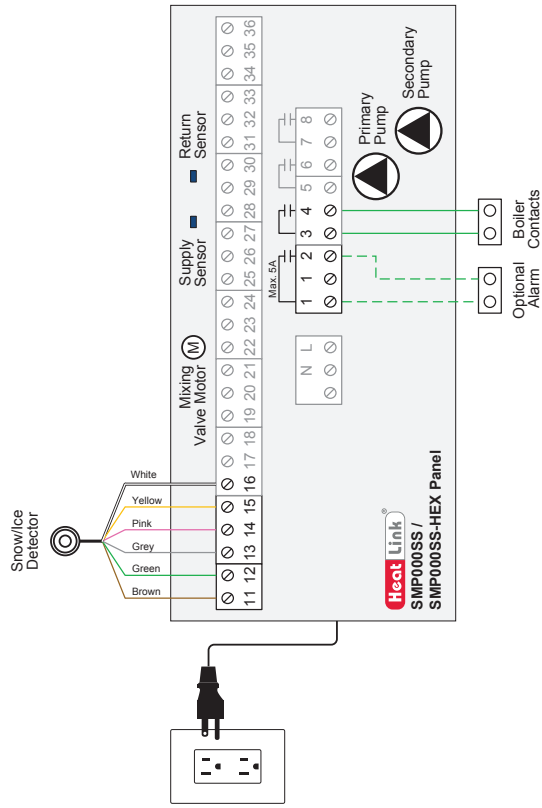
You are now ready for another heating season with HeatLink.



- Notes:**
- Drawings are for HeatLink suggested system layout only! User must determine if system layout will work for their particular application.
 - Air vents, expansion tanks, pressure relief valves, etc. for heat source as per local codes.
 - Use isolation ball valves for all circuits and components.
 - Local codes, regulations, and authorities have final jurisdiction.

Heat Source: Boiler
 Panel(s): SMP000SS Series
 Heat Load(s): Snow Melt
 Date: 2013-05-24

Schematic #: SCH-SMP-M002
 Rough-in wiring see: SCH-SMP-R002
 Wiring detail see: SCH-SMP-E002



Notes:

- Drawings are for HeatLink suggested electrical schematics only! User must determine if electrical schematic will work for their particular application. User must also confirm all HeatLink schematics with manufacturer schematics of each particular control chosen.
- In all cases manufacturer equipment schematics will take precedence over HeatLink electrical schematics.
- Local codes, regulations, and authorities have final jurisdiction.

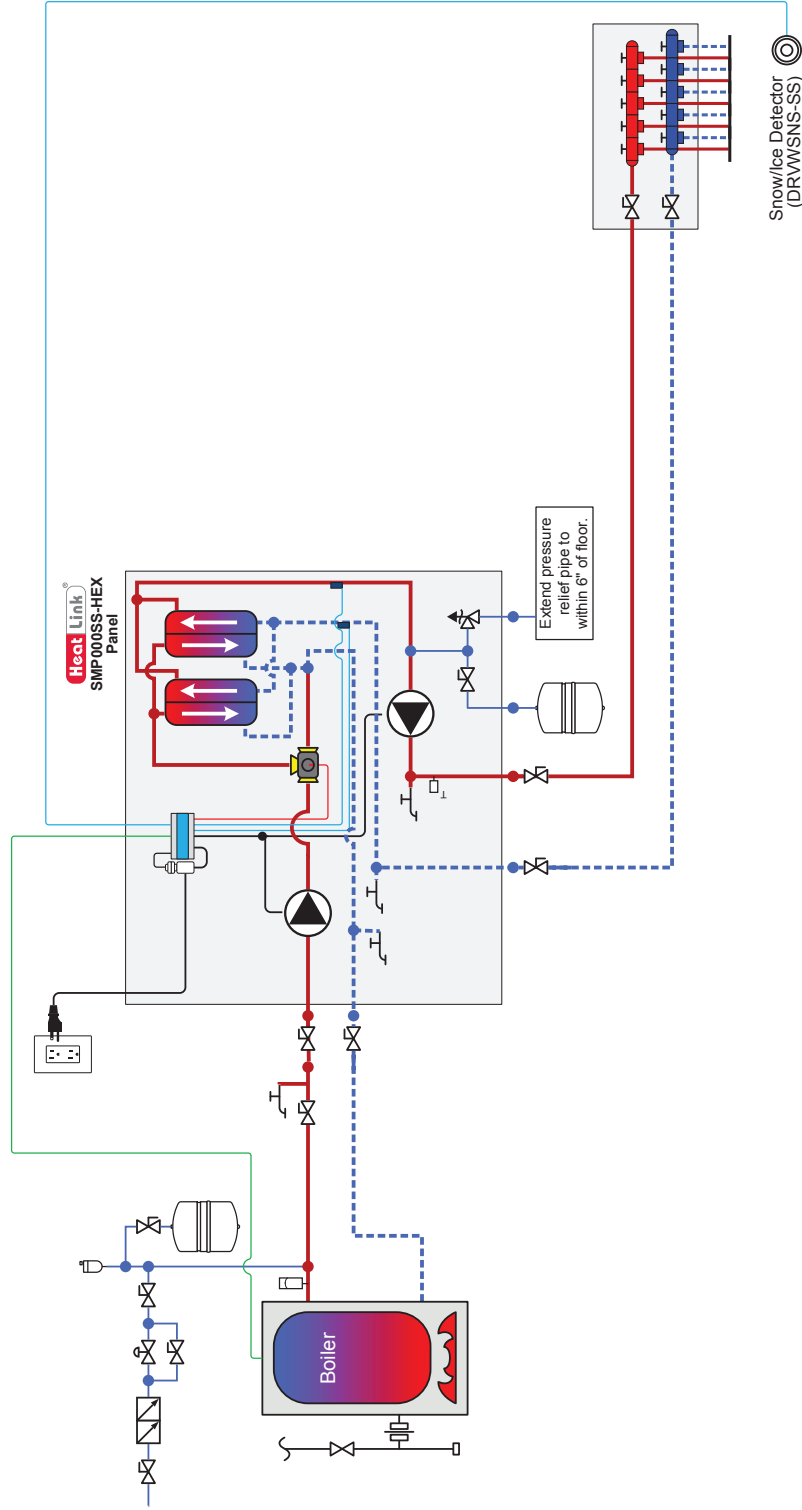
Heat Link
 www.heatlink.com
 1-866-661-5332

Application: Single Snow Melt Pad with Single Snow/Ice Detector

Schematic #: SCH-SMP-E002

Rough-in wiring see: SCH-SMP-R002

Date: 2014-05-08

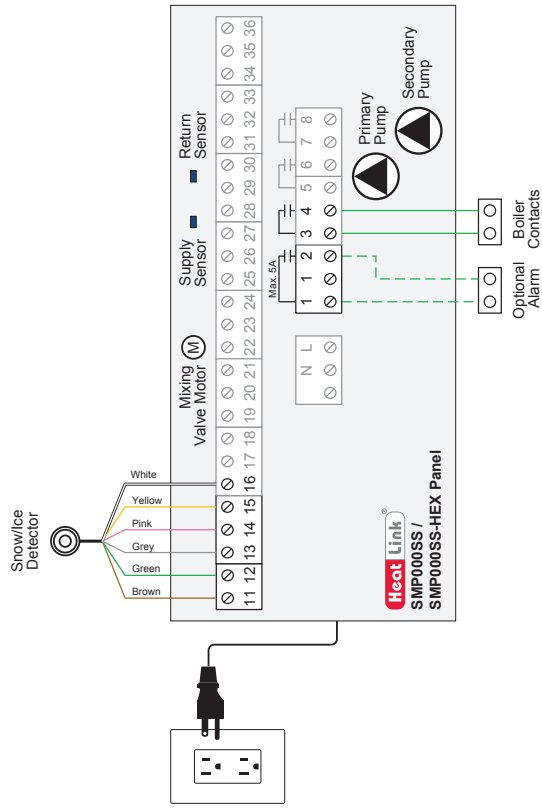


- Notes:**
- Drawings are for HeatLink suggested system layout only! User must determine if system layout will work for their particular application.
 - Air vents, expansion tanks, pressure relief valves, etc. for heat source as per local codes.
 - Use isolation ball valves for all circuits and components.
 - Local codes, regulations, and authorities have final jurisdiction.

Heat Link
 www.heatlink.com
 1-866-661-5332

Heat Source: Boiler
 Panel(s): SMP00SS-HEX Series
 Heat Load(s): Snow Melt
 Date: 2014-05-08

Schematic #: SCH-SMP-M004
 Rough-in wiring see: SCH-SMP-R002
 Wiring detail see: SCH-SMP-E002



- Notes:**
- Drawings are for HeatLink suggested electrical schematics only! User must determine if electrical schematic will work for their particular application. User must also confirm all HeatLink schematics with manufacturer schematics of each particular control chosen.
 - In all cases manufacturer equipment schematics will take precedence over HeatLink electrical schematics.
 - Local codes, regulations, and authorities have final jurisdiction.

Heat Link
 www.heatlink.com
 1-866-661-5332

Application: Single Snow Melt Pad with Single Snow/Ice Detector

Schematic #: SCH-SMP-E002

Rough-in wiring see: SCH-SMP-R002

Date: 2014-05-08



Heat Link® Canada

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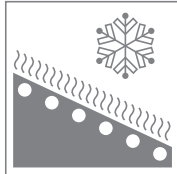
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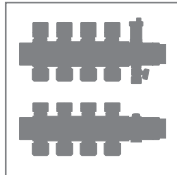


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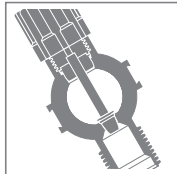
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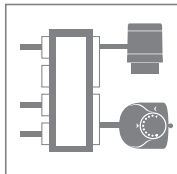


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