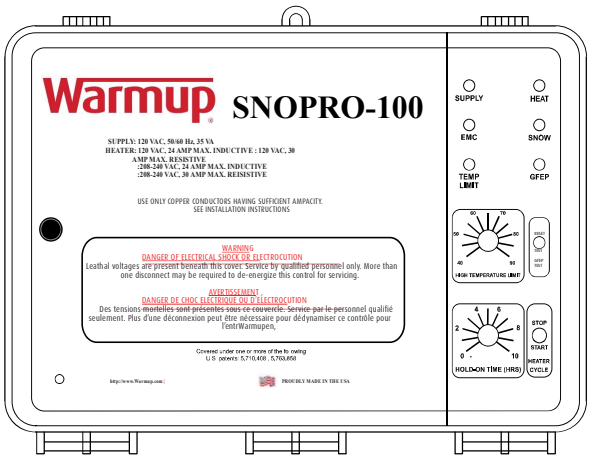
SNOPRO-100

The most universal snowmelting
and freeze protection control in North America



Installation Manual for the
SNOPRO-100
Technical Helpline

US:1-888-927-6333

CA:1-888-592-7687

IMPORTANT!

Please read this manual before attempting to install your Warmup product.

Complete and submit your warranty form online at www.warmup.com or www.warmup.ca

Table of Contents

Warmup SNOPRO-100

SUPPLY : 120 VAC, 50/60 Hz, 35 VA
HEATER : 120-240 VAC, 50/60 Hz, 1 PHASE, 50 AMP MAX. RESISTIVE. ONE OR TWO CIRCUIT AT 50 AMP MAX EACH.

SAFETY

This device provides Equipment Ground Fault Protection required by Article 426.28 of the National Electrical Code. This device does not provide “Personnel (GFCI) Protection” or the equivalent.

Make all electrical connections in compliance with the National Electrical Code (NFPA 70) and local electrical code. If you have questions concerning the installation or application, contact Customer Service.

ADDITIONAL INFORMATION

More information is regularly made available through our website, www.Warmup.com. Please visit us online for Data Sheets, Manuals, White Papers, technical articles, and more. The most current and up to date version of this and every other manual for our products can be found in Acrobat (pdf) format to view online or to print. This is to assist you in installing and using our products to the best effect possible. If you have any comments about this or any other product from Warmup, please contact us.

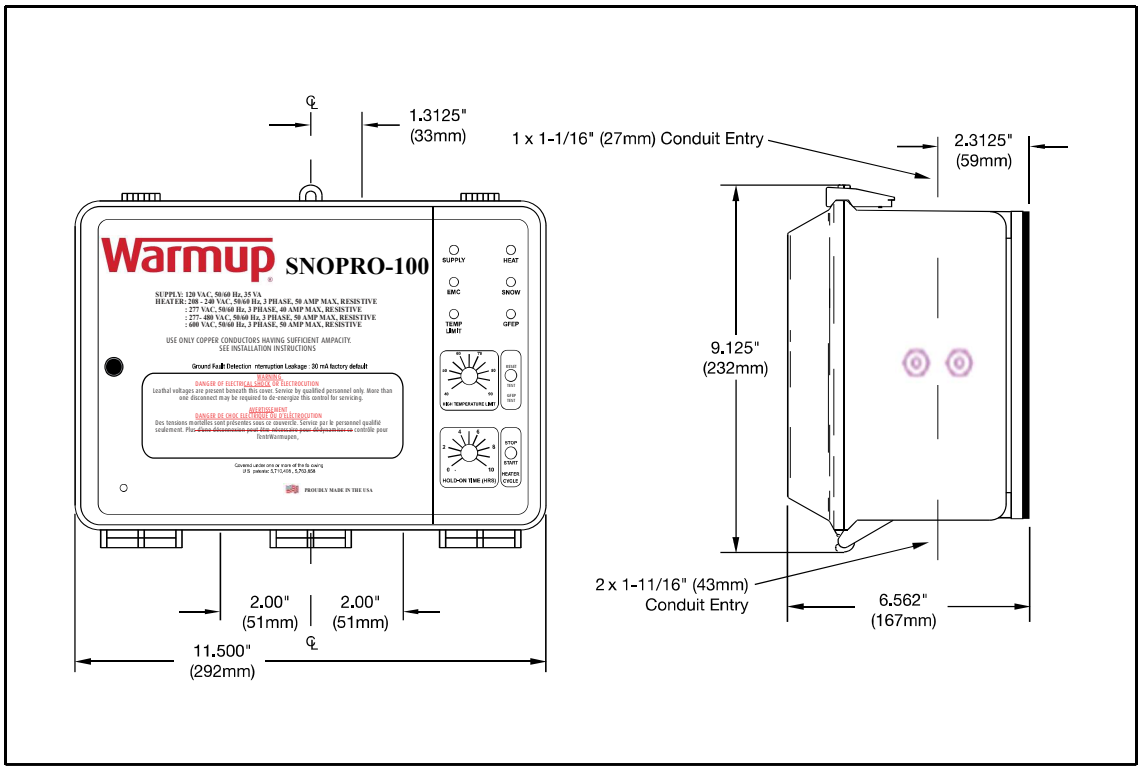


FIGURE 1. SNOPRO-100 Dimensional

INTRODUCTION

The SNOPRO-100 Series Snow Switch Control Panels, when used with compatible Warmup sensors, automatically control snow and ice melting systems, ensuring complete melting for minimal operating costs. Typical applications are pavement, sidewalk, loading dock, roof, gutter, and down spouts.

The new SNOPRO-100 Series model is powered by 120VAC 50/60 Hz and allow for control of load voltages from 120VAC 1 Ph ase to 600VAC 3 Phase.

The SNOPRO-100 is user selectable as either a SNOPRO-100, which uses the snow sensors to detect snow and ice conditions, or can be configured as a Satellite Contactor that expands the load capacity. Both are optimized for resistive loads up to 50 amps with integrated ground fault equipment protection (GFEP).

The SNOPRO-100 provides a relay closure interface for use with Energy Management Computers (EMC). This feature can also be used for general purpose remote control and annunciation and other advanced applications.

Simple remote control features are also provided by the PRO-Remote Remote Control Unit for the SNOPRO-100.

All sensor and communications wiring is NEC Class 2. This simplifies installation while enhancing fire and shock safety. WARNING: Do not over-tighten the Class 2 terminal block screw as this can result in an open/intermittent connection. The SNOPRO-100 can interface with up to six sensors from the PRO series of sensor. More sensors provide superior performance by better matching the controller to site performance requirements. (The Satellite does not make use of snow/ice sensors but rather is notified of snow conditions by the control SNOPRO-100 in the system.)

ENVIRONMENTAL INTERFACES

The SNOPRO-100 Series determines when to start heater operation by monitoring the signals produced by up to six customer supplied environmental sensors, paralleled together using a 3-wire bus. All sensors are Class 2 low voltage for safety reasons. Available sensors include:

- Pro-G Ground Mounted Snow and Ice Sensor
- Pro-A Aerial Snow and Ice Sensor
- Pro-R Gutter Snow and Ice Sensor

When used either alone or in combination, these sensors accurately determine whether snow and ice melting is required. This data is communicated back to the SNOPRO-100 Control Panel.

Sensors measure ambient temperature and detect moisture in any form. Snow, sleet, freezing rain, etc., is assumed if moisture is present at temperatures below 38°F (3.33°C). Beginning heater operation at temperatures slightly above freezing is essential to Warmup customer expectations. It takes a long time for snow to melt at 34°F.

Using several sensors improves snow melting effectiveness by compensating for environmental variations. Consider a typical pavement snow and ice melting system. Vehicular and pedestrian traffic in commercial environments often expose the pavement to tracked slush and blowing or drifting snow. Because refreezing could create a hazardous situation, these hazards must be cleared. The solution is to combine several Pro-G Pavement Mounted Snow and Ice Sensors in expected pedestrian and vehicular pathways, along with a Pro-A Aerial Snow and Ice Sensor placed high in an open, unobstructed location, exposed to falling snow. One or more additional Pro-G sensors might be needed in areas subject to drifting and blowing snow and/or melt water run-off and refreezing.

When two or more sensors are intalled, the first sensor detecting freezing precipitation signals the SNOPRO-100 Control Panel that precipitation has started. The last sensor detecting frozen precipitation signals the SNOPRO-100 Control Panel that precipitation has stopped.

Sensors employ a heated interdigitated grid for moisture detection. Heat melts frozen precipitation to form water which is a better conductor of electricity. Circuits detect water as a change in resistance between the fingers of the interdigitated grid. The temperature of the moisture sensor is regulated electronically.

Each sensor has its own microcontroller for signal processing, logic, and control. This enables the use of a simple 3-wire bus to connect sensors with the Control Panel. Extension wire function and colors follow:

- Supply (Red)
- Signal (White)
- Ground (Black)

Sensors are wired together in parallel in a “wired OR” configuration. That is, red to red, white to white, and black to black. When several sensors are connected in parallel, any sensor asserting a ground on the signal conductor enables snow melting heater operation. No ground on the signal line indicates the absence of snow.

SNOPRO-100 Series models include a separate temperature sensor for measuring pavement slab or ambient air temperature. Its signal is used to provide an adjustable high limit thermostat function. This sensor, or a bypass resistor, is required for proper system operation. This feature is essential when using a potentially high temperature heater such as MI cable.

HIGH LIMIT THERMOSTAT

The calibrated SNOPRO-100 40°F to 90°F (4°C to 32°C) high limit thermostat prevents excessive temperatures when using constant wattage and MI heaters. It also permits safe testing at outdoor temperatures too high for continuous heater operation. The temperature sensor is included and must be connected to the system for proper operation.

There are two DIP switch configurable operation modes for the high limit thermostat. The factory default operation mode uses the high limit thermostat as a slab temperature regulator, preventing heater operation at temperatures above the High Temperature Limit setting. The optional operating mode uses the high limit thermostat as an ambient air sensor, preventing heater operation at temperatures above the High Temperature Limit setting until the temperature drops back to within the set limits. The details of operation in each mode are as follows:

Slab Regulating Thermostat Mode

- High temperature causes unit to turn off heaters, if running, and to ignore any call for heater operation from the panel, RCU, or EMC.
- High temperature continues any hold-on cycle that was initiated before the high temperature condition. If the slab temperature drops within limits during the hold-on time, the heater will be turned back on.
- In a high temperature condition, a SNOPRO-100 will still initiate operation of connected Satellite contactor(s).
- The Heater Cycle functions normally.

Ambient Temperature Thermostat Mode

- High temperature causes unit to turn off heaters, if running, and to ignore any call for heater operation from the panel, RCU, or EMC.
- High temperature cancels any Hold-On cycle that was initiated before the high temperature condition.
- In a high temperature condition, a SNOPRO-100 will not initiate operation of connected Satellite contactor(s).
- If the Heater Cycle switch is operated in a high temperature condition, the heater(s) will be turned on for a maximum of 30 seconds. A new Heater Cycle cannot be initiated for another two minutes after that.

Hold-On Time

The adjustable Hold-On Timer provides three functions affecting heater operation. The Hold-On Timer is used to (1) continue heater operation, (2) to manually operate heaters, or (3) to provide a limited heater cycle for testing.

During normal operation, the Hold-On Timer continues heater operation for an adjustable time period of up to 10 hours after snow stops. The additional operating time compensates for the fact that there may be insufficient power to both melt the snow as it falls and evaporate the resultant melt water.

After normal operation has ended, the Hold-On Timer provides a method for clearing tracked or drifting snow that did not fall on a sensor. This can be accomplished by either increasing the Hold-On Time or by manually toggling the heaters on for the Hold-On Time, independent of environmental conditions.

Lastly, the Hold-On Timer provides a method of safe heater testing that is independent of environmental conditions. The high limit thermostat ensures that this is the case. In ambient mode, at ambient temperatures above the high limit, the manual Hold-On Time is reduced to 30 seconds. In pavement mode, at pavement temperatures above the High Temperature Limit, the heaters are disabled.

Initial Settings

When first placing the system into service, the Hold-On Time should be set to an initial value; 3 to 5 hours is suggested as a starting point. If the heaters turn off before the snow is completely cleared and the melt water evaporated, increase the Hold-On Time by an hour or two. If the heaters operate for several hours after the pavement is clear and dry, decrease the Hold-On Time by an hour. Continue this process until satisfactory performance is achieved.

The small amount of energy wasted by a slightly excessive Hold-On Time is secondary to complete snow clearing and melt water evaporation. Incomplete operation is not desirable because this can result in re-freezing melt water which creates a slippery ice film.

If the System Turns Off Too Soon

If the system turns off before the pavement is clear and dry, toggle the heaters on using the Heat Cycle switch on the front panel. Repeat as many times as is necessary until the pavement is clear and dry. If the heaters remain operating after the pavement is clear and dry, terminate the Hold-On cycle with the Heat cycle switch. Normal operation resumes if it starts snowing during the Hold-On Time.

GROUND FAULT EQUIPMENT PROTECTION (GFEP) OPERATION

GFEP operates in the event of a deicing heater failure indicated by excessive leakage current to ground. The leakage current equals the difference between the line and return currents flowing through the heaters. A precision current transformer measures the difference in currents. If the difference exceeds 30 mA, the heater contactor drops out. This removes heater power, thus eliminating potential fire and electric shock hazards.

Sometimes, longer length and/or higher voltage heaters cause nuisance GFEP operation. This is true even though the heaters are operating properly. Increasing the GFEP operating current can correct this problem. A DIP switch can increase the operating current from a default value of 30 to 60 or 120 mA.

Restoring heater operation requires operating the GFEP Reset switch on the front of the Control Panel. This starts a sequence of events beginning with testing the GFEP to make certain that it operates properly. If it is inoperative, the GFEP condition persists. Otherwise, the heater contactor is energized. If excessive ground current flows, the GFEP drops the contactor and waits for operation of the Reset switch. Otherwise, the contactor is operated only if there is a call for heat.

The GFEP checks itself and the deicing heaters every 24 hours, independent of environmental conditions. Operating the GFEP Test switch performs the same function. In addition, the GFEP function is tested each time the heater control contactor operates.

ENERGY MANAGEMENT COMPUTER (EMC) INTERFACE

The SNOPRO-100 Series interfaces with an EMC via relays. Inputs from the EMC include Override On, which causes heater operation, and Override Off, which inhibits heater operation. These functions are independent of weather conditions and the status of the Hold-On Timer. The interface provides five system status contact closures for the EMC including Supply, Snow, Heater, Alarm, and Temperature Limit. Absent signals from the EMC, the SNOPRO-100 Control Panel controls the heaters based on environmental conditions. Automatic snow melting control is the default condition of the system.

SNOPRO-100 FRONT PANEL

The SNOPRO-100 has indicators, adjustments, and a switch for local control of the snow melting system. Indicators include LED lights for Supply, Snow, Heat, EMC, Temp Limit, and GFEP. Adjustments provided allow for the calibrated adjustment of system Hold-On Time from 0 to 10 hours (or off) and Temp Limit for the High Temperature Limit adjustment with a range of 40° to 90°F (4° to 32°C). There are two toggle switches. The GFEP Test toggle switch toggles up to Reset a ground fault condition and toggles down to Test the ground fault circuitry. The Heater Cycle toggle switch permits manual starting and stopping of a Heater Cycle.

Figure 2 shows the SNOPRO-100 front panel layout.

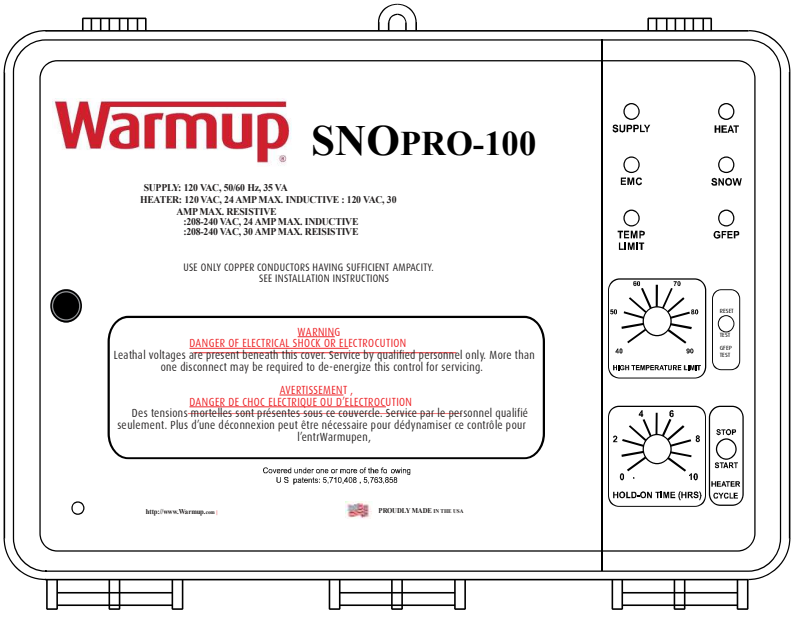


FIGURE 2. SNOPRO-100 front panel detail

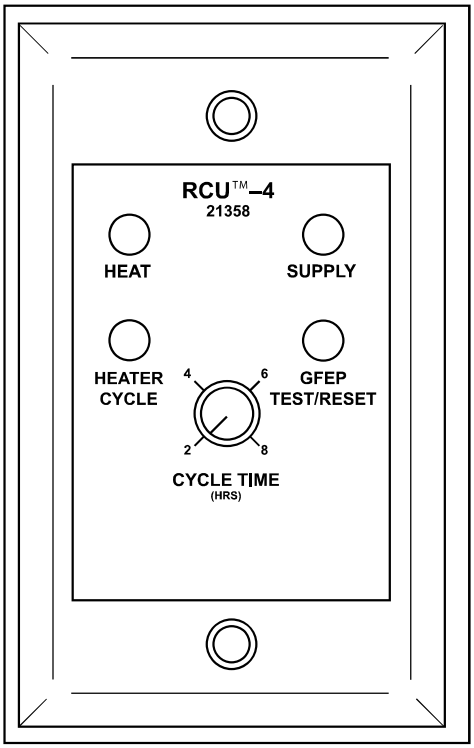


FIGURE 4. PRO-Remote

PRO-REMOTE CONTROL

The PRO-Remote Control Unit is used along with the SNOPRO-100. It adds remote control and status display to the SNOPRO-100 or Satellite controls at a location convenient to personnel capable of observing snow melting system operation.

Snow, slush, or ice, whether alone or in combination, must contact at least one sensor to start melting. Heater operation continues until all sensors are dry. Depending on the rate of fall, snow density, wind velocity, power density, and other factors, heater operation must continue for a period of time after the last sensor dries off. Slush tracked by vehicle and pedestrian traffic, along with blowing and drifting snow, are problems that are hard to predict.

The cycle timer in the SNOPRO-100 and Satellite begins when the last sensor dries off and continues for an adjustable period of up to 10 hours to keep the heaters operating until the pavement is completely dry. Otherwise, residual water could re-freeze and create a hazardous condition.

The PRO-Remote provides a 2, 4, 6, or 8-hour Cycle Time adjustment that is independent of the PRO-Remote and Satellite cycle times. This allows treatment of the condition requiring extra heating as the exception rather than the rule thus minimizing energy use.

Operating the Heater Cycle switch operates heaters for the Cycle Time which is normally set for 2 hours. Operating the Heater Cycle switch during the cycle time stops the timer. If the pavement or ambient temperature exceeds the SNOPRO-100 or Satellite High Temperature Limit setting, the heater duty cycle is reduced or disabled to prevent overheating.

Status indicators include Supply and Heat. These perform the same functions as those on the SNOPRO-100.

The GFEP switch performs the same functions and operates in the same manner as those on the SNOPRO-100 and Satellite. In the event of an unacknowledged GFEP, the Heat indicator flashes.

Figure 4 shows the PRO-Remote layout.

OPERATION

SNOPRO-100

The snow melting system can be controlled and monitored either locally from the SNOPRO-100 itself or from two remote locations connected to the SNOPRO-100 Control Panel including:

- PRO-Remote Remote Control Unit
- Warmup's Snow Melting App (WSM)
- EMC

Control initiated from a Satellite is local to the heater(s) connected to that panel and will not affect the operation of heaters attached to the SNOPRO-100 Control Panel or other Satellite Contactor in the system. This includes remote control operation from an PRO-Remote or EMC connected to a Satellite.

LOCAL CONTROL FOR THE SNOPRO-100 or Satellite Indicators

- SUPPLY (green) shows that power is present.

- SUPPLY (green, blinking) indicates that either the pavement temperature sensor is missing from the system or is not functioning. The temperature sensor is included and must be connected to pins 10 and 11 for proper operation.

- SNOW (yellow) shows that there is a snow/ice signal originating from at least one of the connected Pro-A, Pro-R, and/or Pro-G sensors attached to the system.

- HEAT (yellow) shows that there is a call for heat. This happens during snow and for the hold-on time thereafter or when the heater cycle switch is operated.

- EMC (yellow) shows that the interfaced Energy Management Computer is presently overriding local system control.

- TEMP LIMIT (red) shows that either the pavement temperature is above the High Temperature Limit setting and there is a call for heat or the ambient air temperature is above the High Temperature Limit setting. The SNOPRO-100 can be configured to monitor ambient air temperature or slab temperature but not both.

- GFEP (red) shows that there is a GFEP condition present on the local SNOPRO-100 Control Panel or Satellite Contactor.

- GFEP (red, blinking) shows that there is a ground fault condition

Adjustments

- Hold-On Time adjustment sets the time that heaters operate after snow stops. Doing this is necessary to make certain the pavement dries before heating ceases. This prevents refreezing. Try an initial setting of 3 to 5 hours. Increase, if necessary. Reduce with care as energy savings are being traded for an increased likelihood of refreezing.

- High Temperature Limit adjustment sets the maximum deicing temperature.

Switches

- The GFEP Test switch momentarily toggled down will start a test of the ground fault circuitry of that SNOPRO-100 or Satellite. Momentarily toggled up will Reset a ground fault condition at that SNOPRO-100 or Satellite.

- The Heater Cycle switch momentarily toggled down will start a manual heater cycle for the Hold-On Time setting or restart the Heater Cycle if one was in progress. Momentarily toggled up will cancel a heater cycle if one is in progress.

REMOTE CONTROL FROM THE PRO-Remote Indicators

- SUPPLY (green) shows that power is present.

- HEAT (yellow) shows that there is a call for heat. This happens during snow and for the Hold-On Time thereafter or when the Heater Cycle switch is operated.

Adjustments

- Cycle Time adjustment sets the time the heaters will operate when the Heater Cycle switch is momentarily depressed at the PRO-Remote.

Switches

- The GFEP Test/Reset switch momentarily depressed when there is no ground fault condition will start a test of the ground fault circuitry of that SNOPRO-100 or Satellite. Momentarily depressed when there is a ground fault condition at the attached SNOPRO-100 or Satellite will Reset a ground fault condition at that SNOPRO-100 or Satellite and start a test of the ground fault circuitry of that SNOPRO-100 or Satellite.

- The Heater Cycle switch momentarily depressed will start a manual Heater Cycle for the Cycle Time setting.

Momentarily depressed while heaters are being operated by a Hold-On Timer or during manual Heater Cycle will end the Heater Cycle. Heater operation during snow conditions cannot be canceled in this manner.

REMOTE CONTROL FROM THE EMC INTERFACE

The EMC interface is identical on all of the SNOPRO-100 Series models. Please see the EMC section below for interface details.

ENERGY MANAGEMENT COMPUTER (EMC) INTERFACE

The SNOPRO-100 Series provides an EMC interface to communicate with the EMC of building automation systems. The EMC interface provides 10 mA dry switch contacts for communicating status to the EMC or starting or stopping the system from the EMC.

Refer to Figure 20 (Page 15) for EMC connections.

EMC INTERFACE OUTPUTS

- Output Common
- HEAT indicates that there is a call for heat. This happens during snow and for the Hold-On Time thereafter or when the heater cycle switch is operated.
- SNOW indicates that there is a snow/ice signal originating from at least one of the connected Pro-A, Pro-R, and/or Pro-G sensors attached to the system.
- ALARM indicates ground fault alarm.
- SUPPLY indicates that power is present.
- TEMP LIMIT indicates that either the pavement temperature is above the High Temperature Limit setting and there is a call for heat or the ambient air temperature is above the High Temperature Limit setting. A SNOPRO-100 Series Control Panel can be configured to monitor slab temperature or ambient air temperature but not both.

EMC INTERFACE INPUTS OVERRIDE ON can be used to override an attached SNOPRO-100 Series Control Panel in order to turn heaters on. A normal contact closure will turn on heaters until operation is canceled. If the EMC cycles the Override On relay on and off again within more than 32 milliseconds but less than 300 milliseconds, the attached SNOPRO-100 Series Control Panel will begin a manual Heater Cycle and run for the Hold-On Time setting.

OVERRIDE OFF can be used to override an attached SNOPRO-100 Series Control Panel in order to turn heaters off. A normal contact closure will turn off heaters. If the EMC cycles the Override Off relay on and off again within more than 32 milliseconds but less than 300 milliseconds, the attached SNOPRO-100 Series Control Panel will end a manual Heater Cycle. If both override on and Override off are closed (selected) the override off will take precedence.

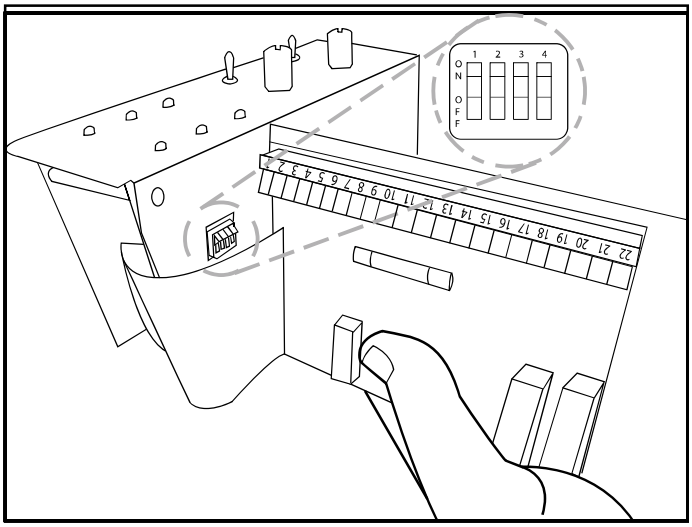


FIGURE 5. Location of DIP Switch

INSTALLATION

DIP SWITCH SETTINGS

Configuring GFEP Threshold

DIP switch pins 1 and 2 are utilized to set GFEP threshold. On the SNOPRO-100 and Satellite, the integrated GFEP can be set to 30 mA, 60 mA, 120 mA, or Off. Factory default is 30 mA. The GFEP off selection is for trouble shooting purposes only and is not recommended for normal operations.

Figure 6 shows how to configure the GFEP option at the DIP switch.

Configuring the High Limit Thermostat

Dip Switch pin 3 is used to set the high limit thermostat operation to one of two possible operating modes:

- Off sets the high limit thermostat as a slab regulating temperature sensor.
- On sets the high limit thermostat as an ambient air sensor. Off is the factory default.

Figure 7 shows how to configure the high limit thermostat mode at the DIP switch.

SNOPRO-100/ Satellite SELECTION

DIP switch pin 4 is used to change the function of the unit from SNOPRO-100 to Satellite function. When the Satellite function is selected (the 4th switch is on) any connected snow sensors will cease to function. Snow sensors will only work with the unit configured as a SNOPRO-100 (4th switch off). Be sure to cycle power to the control after changing switch. Figure 8 shows how to configure the SNOPRO-100 / Satellite selection at the dip switch.

BYPASSING THE HIGH TEMPERATURE LIMIT SENSOR

If, for any reason, you need to operate the system without the High Temperature Limit Sensor (for troubleshooting or while waiting for a replacement sensor), you can temporarily replace the sensor with a 470K resistor. The resistor will allow the system to run as if the sensed temperature was 40°F (4.4°C).

READING THE GFEP CURRENT

The GFEP current being sensed by a SNOPRO-100 or Satellite can be measured using a standard hand-held digital volt meter (DVM). Attach the DVM (reading DC voltage up to 2 volts) to pins 12 and 13. The DVM reading will be scaled 0.01 VDC= 1 mA. A typical reading then may be 0.3 VDC, which would equal a GFEP current of 30 mA.

As long as no ground fault condition exists, the DVM reading will change in real time. In the case of a ground fault condition, the reading at the time of the ground fault will be read until GFEP is reset on the panel or until power is cycled.

DIP Switch Settings GFEP

DIP Switch Settings			
1	2	3	4
Off	Off	----	----

30 mA (Factory Default)

DIP Switch Settings			
1	2	3	4
Off	On	----	----

60 mA

DIP Switch Settings			
1	2	3	4
On	Off	----	----

120 mA

DIP Switch Settings			
1	2	3	4
On	On		

GF disabled

FIGURE 6. DIP Switch GFEP Threshold Settings

DIP Switch Settings HLT

DIP Switch Settings			
1	2	3	4
		Off	

Slab Regulating Temp. Sensor

DIP Switch Settings			
1	2	3	4
		On	

Ambient Air Sensor

FIGURE 7. DIP Switch Settings for High Limit Thermostat

DIP Switch Settings			
1	2	3	4
----	----	----	Off

SNOPRO-100 Wi-Fi

DIP Switch Settings			
1	2	3	4
----	----	----	On

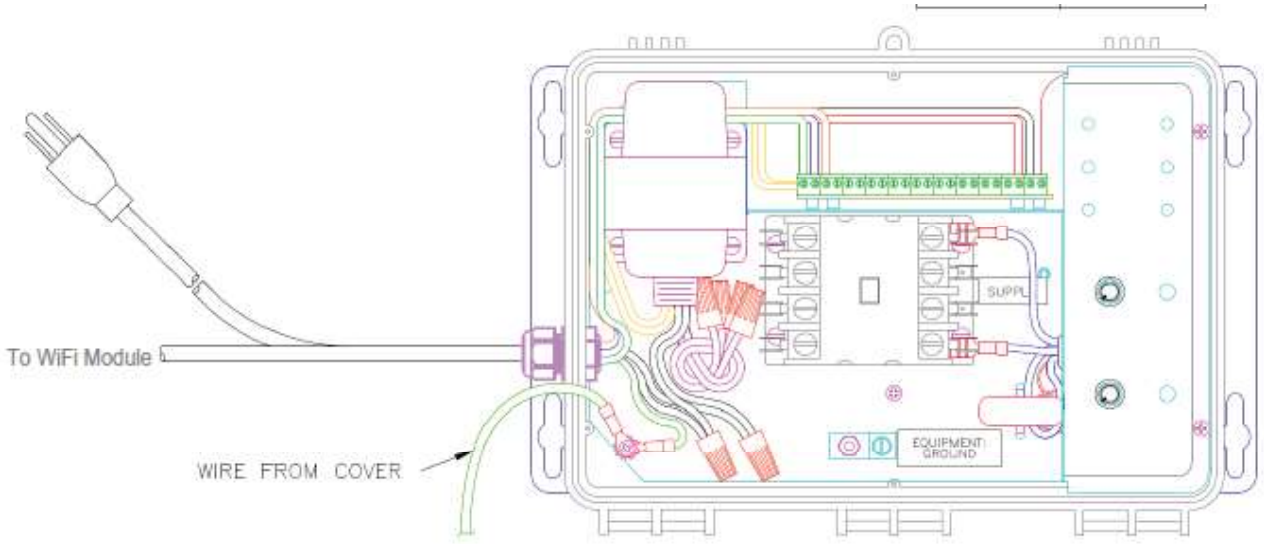
SNOPRO-100

FIGURE 8. SNOPRO-100 Wi-Fi and SNOPRO-100

SNOPRO-100 / SNOPRO-100 Wi-Fi Line Connections

Wires from WiFi Module to SNOPRO

WIRES TO SNO–PRO	
COLOR	POSITION
BLACK	PIN 2
RED	PIN 3
ORANGE	PIN 20
BLUE	PIN 21
GREEN	PIN 22



NOTE: DO NOT WIRE SELF-REGULATING CABLE DIRECTLY TO THE CONTACTOR INSIDE THE CONTROL AS IT WILL CREATE EXCESSIVE HEAT.

PROPERLY WIRE A COLD LEAD FROM THE CONTACTOR TO THE JUNCTION BOX.

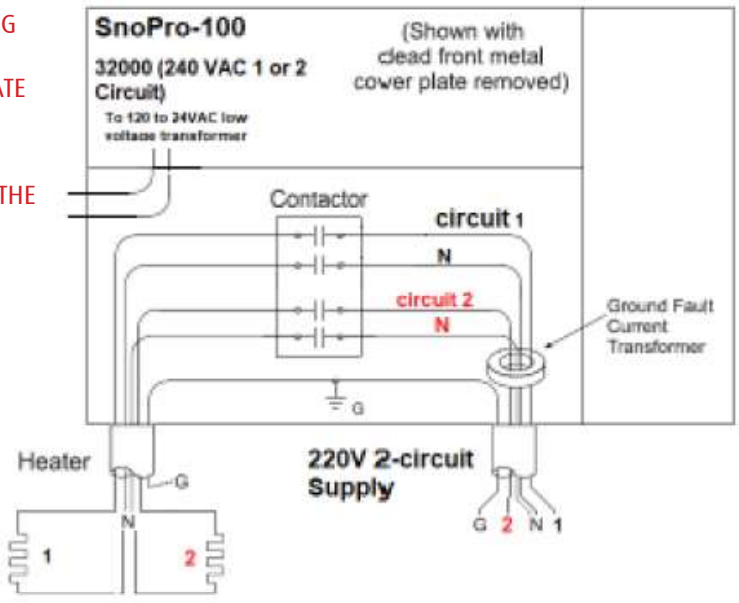
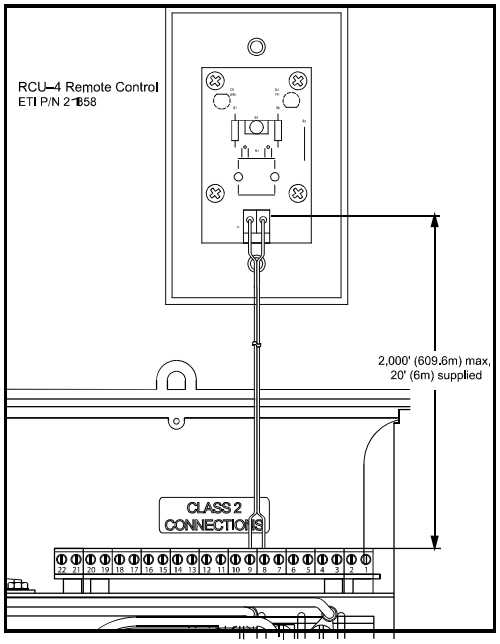
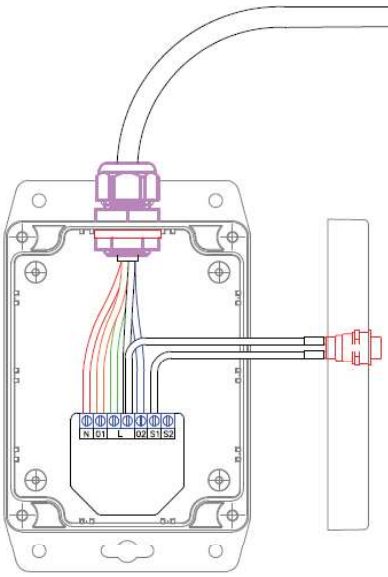


FIGURE 12.
SNOPRO-100 / SNOPRO-100 Wi-Fi 240 VAC Single Phase Heater Connection.

SNOPRO-100 & REMOTE CONNECTIONS

FIGURE 16.
Pro-Remote Connection Between Pins 8 and 9





SNOPRO-100 Wi-Fi Module
See instruction at end of manual to pair with a device.
The red push button will allow the user to turn on and off the SNOPRO-100 heater and can be used to reset the Wi-Fi Module.

WIRES TO WI-FI RELAY	
COLOR	POSITION
RED	N
ORANGE	01
GREEN	L
BLACK	L
BLUE	02
SWITCH	L AND S1

In case the Device has not created its own Access Point Wi-Fi network with SSID like shelly1-35FA58, please check if the Device is connected according to the Installation Instructions. If you still do not see an active Wi-Fi network with SSID like shelly2-xxxxxx, or you want to add the Device to another Wi-Fi network, reset the Device.

If the Device has been powered on, you have to restart by powering it off and on again. After turning the power on, you have one minute to press 5 consecutive times the button/switch. You have to hear the Relay trigger itself. After the trigger sound, the Shelly should be visible in the Device's Settings>Wi-Fi.

If not, please repeat or contact our customer support at: ussales@warmup.com

COMMUNICATIONS CONNECTIONS FOR DIFFERENT SNOPRO-100 UNITS

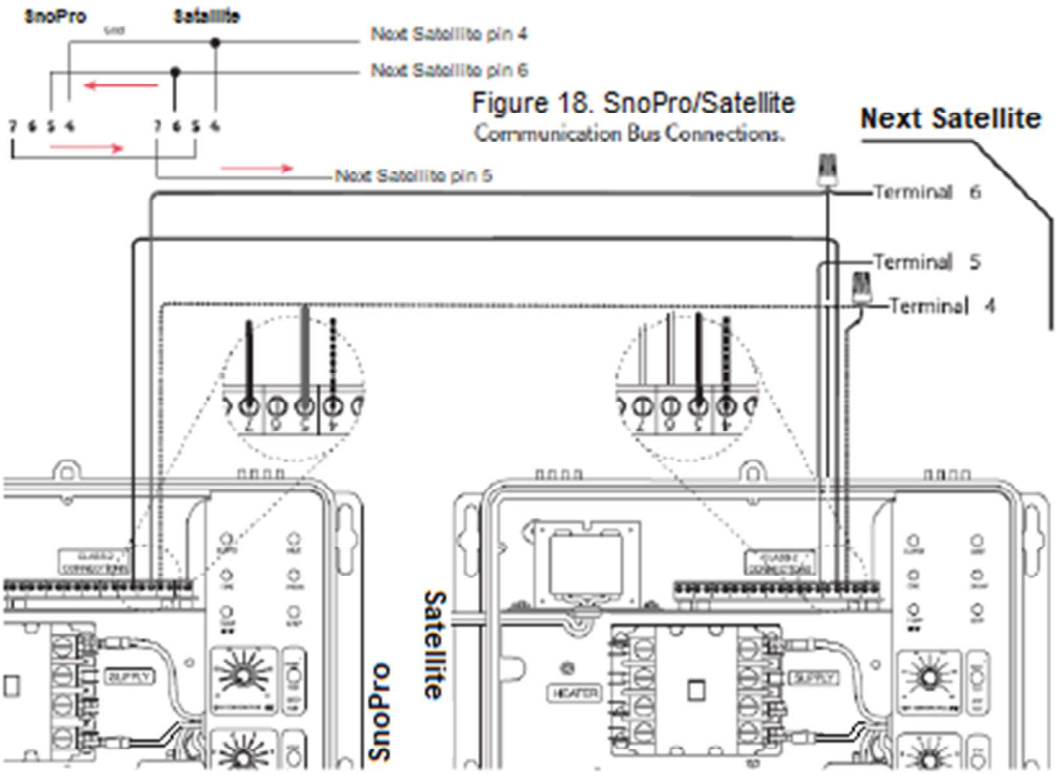


Figure 18. SnoPro/Satellite
Communication Bus Connections.

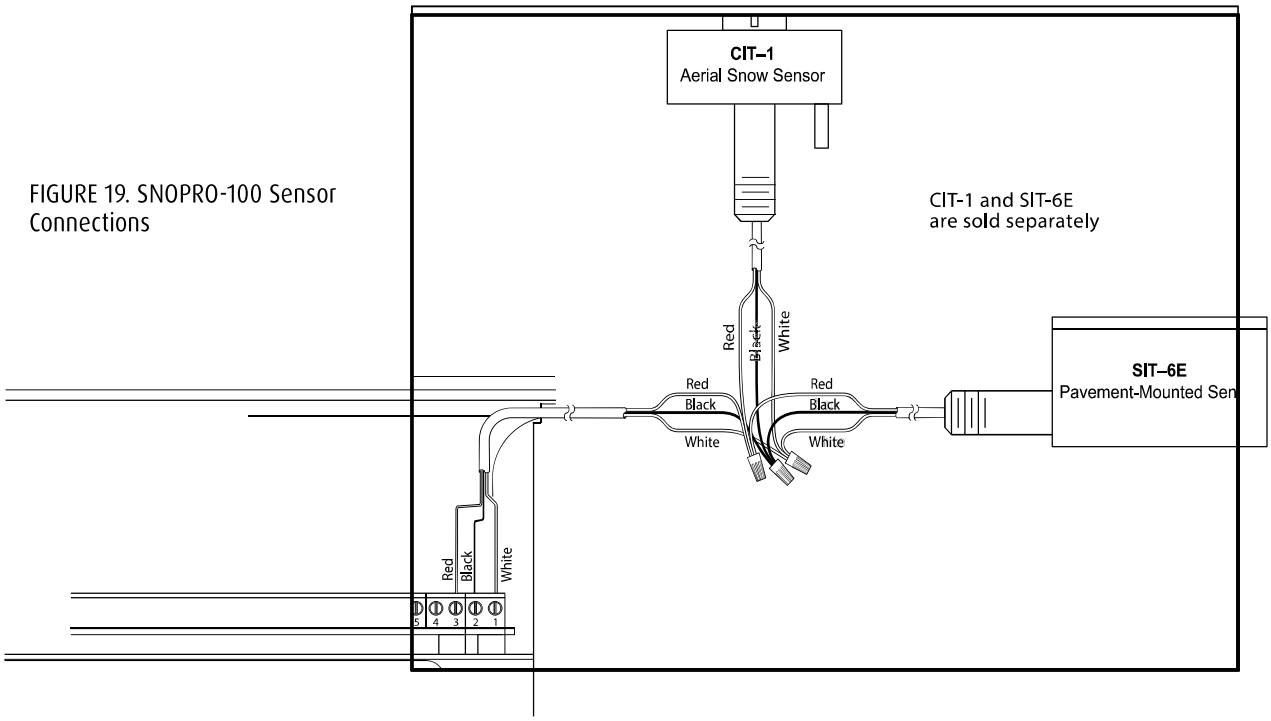


FIGURE 19. SNOPRO-100 Sensor Connections

EMC—BUILDING AUTOMATION ENERGY MANAGEMENT COMPUTER

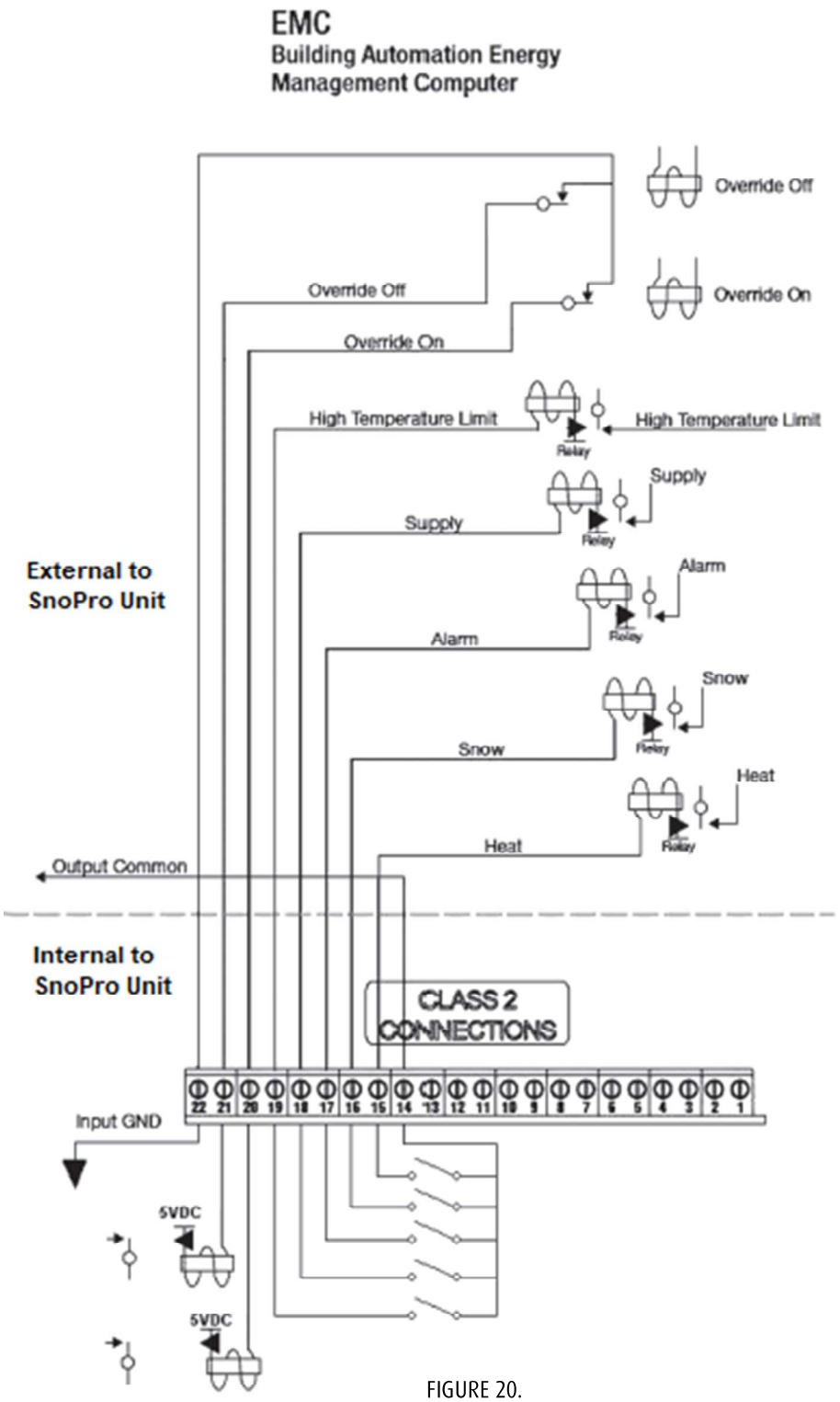


FIGURE 20.
SNOPRO-100 / SNOPRO-100 Wi-Fi EMC Connections

TERMINAL BLOCK CONNECTIONS

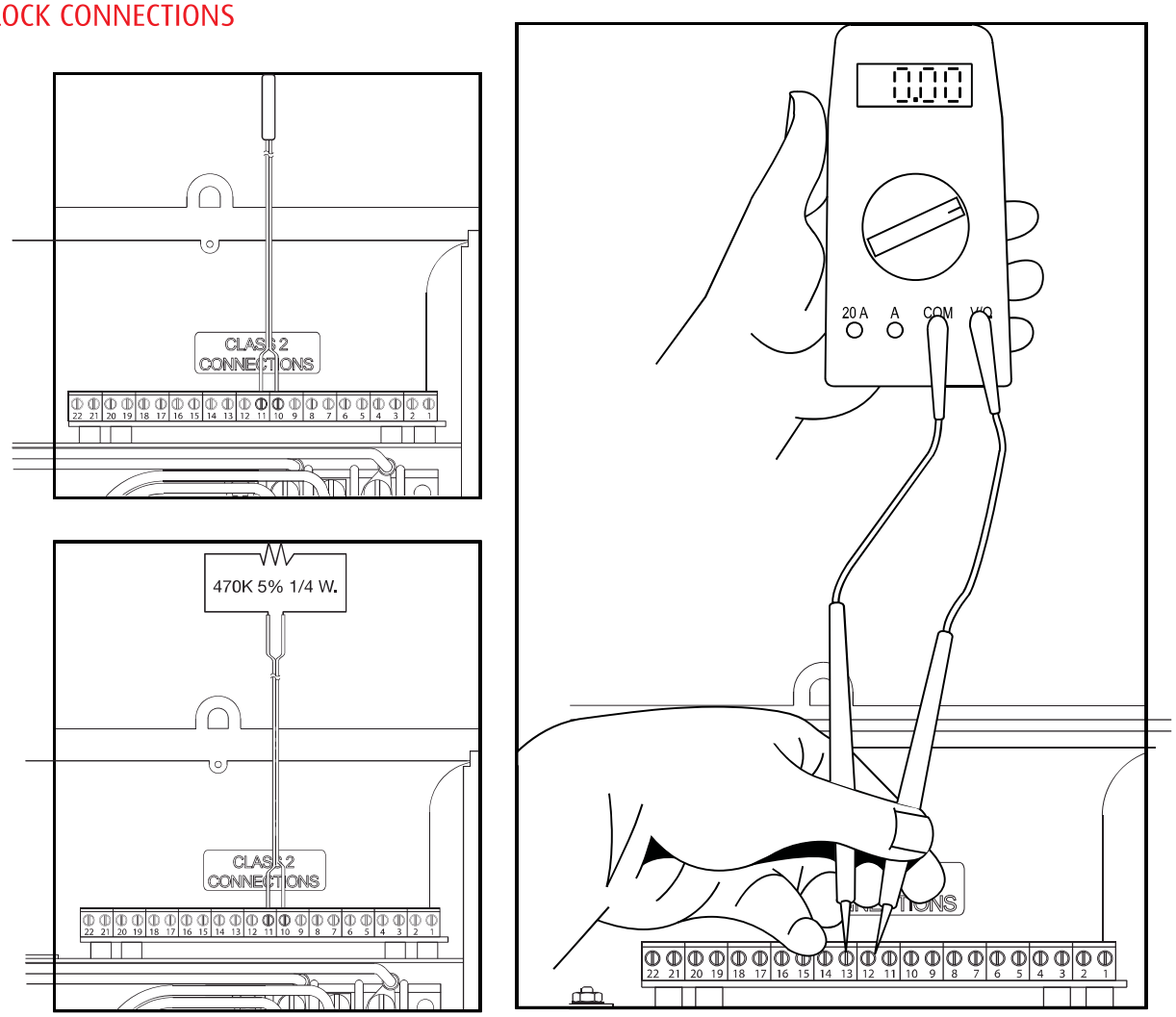


FIGURE 21
Terminal Block Connections

INTERFACE BOARD CONNECTIONS

PIN #	CONNECTION
1	Sensor Connection (White wire)
2	Sensor Connection (Black wire - Gnd)
3	Sensor Connection (Red wire =+24VDC)
4	Satellite Panel Connection
5	Satellite Panel Connection
6	Satellite Panel Connection
7	Satellite Panel Connection
8	RCU-3/PRO-Remote Connection
9	RCU-3/PRO-Remote Connection
10	Thermistor Connection
11	Thermistor Connection

PIN #	CONNECTION
12	Electrician's DVM
13	Electrician's DVM
14	Output Common
15	Heat
16	Snow
17	Alarm
18	Supply
19	High Temperature Limit
20	Override On
21	Override Off
22	Close Override On/Off Circuit

ORDERING INFORMATION

Product	Desciption
SNOPRO-100 Controllers	
SNOPRO-100	SNOPRO-100: Control Panel, 120 VAC 50/60 Hz
SNOPRO-100 Wi-Fi	SNOPRO-100 Wi-Fi: Control Panel, W/ WI-FI Module
*High Temperature Sensor w/ 20' (6m) lead (Qty 1 included)	
Sensors (Not Included)	
Pro-A	Aerial Sensor
Pro-G	Ground Sensor
Pro-R	Gutter Sensor
Pro-Remote	Remote Panel

CONTACTING CUSTOMER SERVICE

For assistance, contact Customer Service. Office hours are from 8:00 AM until 5:00 PM ET.

Email: ussales@warmup.com

Web: www.warmup.com

www.warmup.ca

Mail: Warmup Inc.
25 Clark Circle, Suite A
Bethel, CT 06801

LIMITED WARRANTY

Warmup's two year limited warranty covering defects in workmanship and materials applies. Contact Customer Service for complete warranty information.

DISCLAIMER

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SPECIFICATIONS

All Specifications apply to SNOPRO-100 and SNOPRO-100 Wi-Fi panels unless stated otherwise.

General

Area of use	Nonhazardous locations
Approvals	UL 60730-1, 5th Ed., Issue Date: 2016-8-3, Revision Date: 2021-10-18 CAN/CSA E 60730-1:15, 5th Ed., AMD 2, Issue Date: 2015-12, Revision Date: 2021-10

Enclosure

Protection	NEMA 3R
Cover attachment	Hinged polycarbonate cover, lockable
Entries	SNOPRO-100 / SNOPRO-100 Wi-Fi • 1x1/16" entry (top) for NEC Class 2 connections • 2x1-11/16" entries (bottom) for supply and load power (except for 277 VAC Single Phase)
Material	Polycarbonate
Mounting	Wall mounted

Control

Supply	SNOPRO-100 /SNOPRO-100 Wi-Fi 120 VAC, 50/60 Hz, 35 VA, 50/60 Hz
Load	SNOPRO-100 / SNOPRO-100 Wi-Fi • 208-240 VAC, 50 amp max. resistive • 277 VAC, 40 amp max. resistive • 277/480 VAC, 50 amp max. resistive • 600 VAC, 50 amp max. resistive
Contact type	SNOPRO-100 and SNOPRO-100 Wi-Fi • 4 Form A

Snow/Ice Sensors

Sensor type	Up to 6 sensors from the PRO product family
Circuit type	NEC Class 2
Lead length	Up to 500′ (152m) using 18 AWG 3-wire jacketed cable Up to 2,000′ (609m) using 12 AWG 3-wire jacketed cable

Energy Management Computer (EMC) Interface

Inputs	OVERRIDE ON (10 ma dry switch contact) OVERRIDE OFF (10 ma dry switch contact)
Outputs	SUPPLY (10 mA dry switch contact) SNOW (10 mA dry switch contact) HEAT (10 mA dry switch contact) HIGH TEMP (10 mA dry switch contact) ALARM (10 mA dry switch contact)

Environmental

Operating temperature	– 40°F to 131°F (–40°C to 55°C)
Storage temperature	– 50°F to 140°F (–45°C to 60°C)

Ground Fault Equipment Protection (GFEP)(SNOPRO-100 and Satellite only)

Set point	30 mA (default); 60 mA and 120 mA selectable by DIP switch
Automatic self-test	Mode A: Verifies GFEP function before contactors operate Mode B: Verifies GFEP and heaters every 24 hours
Manual test/reset	Toggle switch provided for this function
Maintenance facility	DC output proportional to ground current provided for troubleshooting the heater system

Communication Bus (SC-40D only)

Number of cascaded units	Unlimited
Contactor delay	5 second
Bus-wire type	3-wire jacketed cable
Circuit type	NEC Class 2
Lead Length	Up to 500′ (152m) using 18 AWG 3-wire jacketed cable Up to 1,000′ (304m) using 12 AWG 3-wire jacketed cable

Smartphone Application

To activate your SNOPRO-100 automatically as it was designed to be, you must follow these steps.

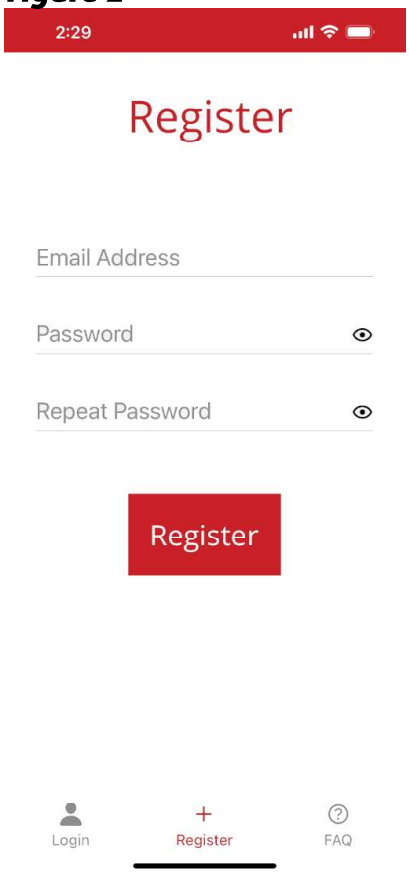
STEP 1: Download the Warmup WSM application available in your iOS or Android app store (Figure 1).

Figure 1

Upon download, verify that your system is properly wired and powered so that it can emit the necessary signals to your home's Wi-Fi router. This signal will then be picked up by your phone for the activation of the app.

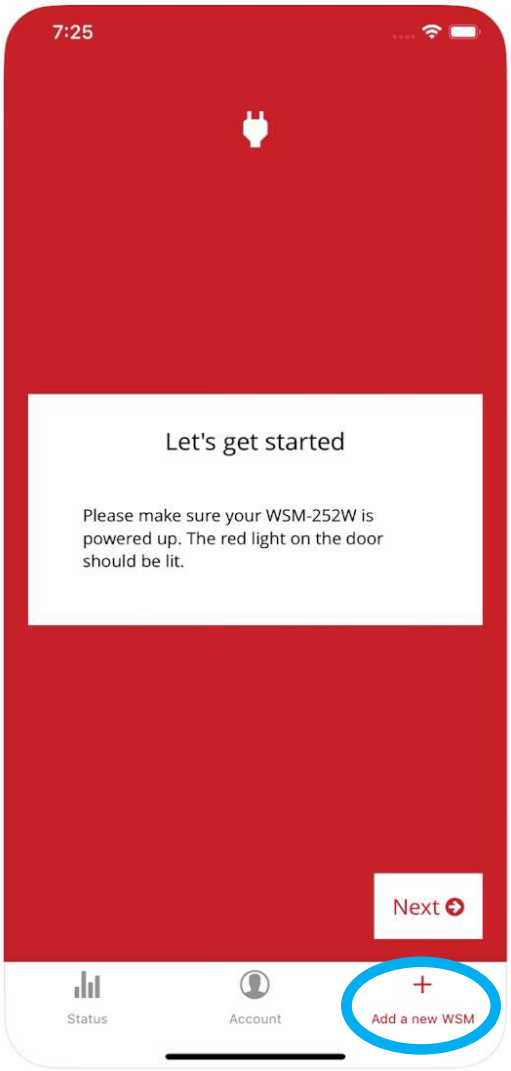
STEP 2: Register your device (Figure 2) with your email and create a password and then click Register.

Figure 2



STEP 3: Click "Add a new WSM" on the bottom right in the "Let's Get Started" menu (Figure 3).

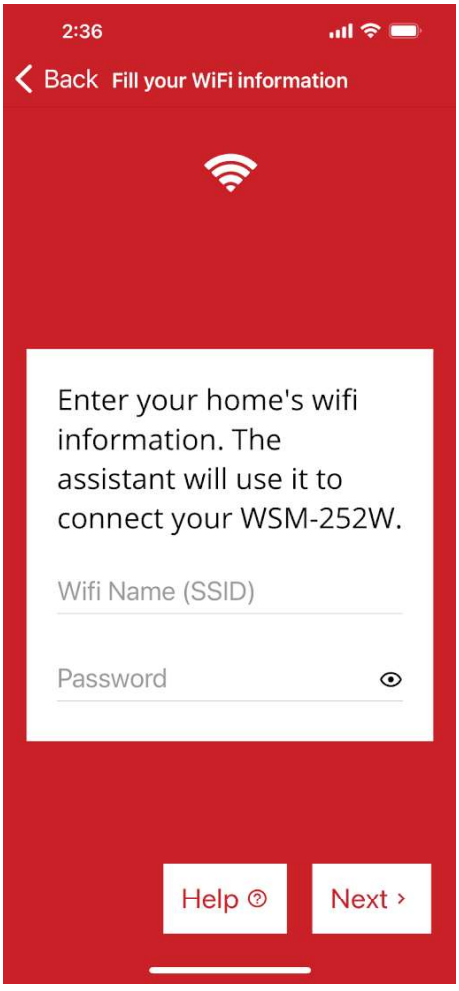
Figure 3



STEP 4: Enter the home's Wi-Fi network information closest to the controller (Figure 4). Click "Next".

NOTE: Make sure your device (e.g., phone/tablet) is set to the same network during the setup. The Wi-Fi network MUST be a 2.4ghz network.

Figure 4



STEP 5: Pairing the controller to the WSM App (Figure 5). Go to your device's (e.g., phone/tablet) WiFi settings (Figure 6) and look for an available network that will start with "Shelly" and connect to it.
The "Shelly" network will have its own unique ID and will look something like this: "Shellyx-xxxxxxx."

NOTE: The "Shelly" nework is used to link the controller with the WSM Application on your device. This step is only done once per controller.

Figure 5

Figure 6

STEP 6: Next, return to the WSM App and click "Next."

This will pair up your phone with the device (Figure 7). You can repeat this operation with any other phone. Once it has connected to the Shelly network, it will prompt you to return to the SETTINGS of your phone and return to your home's Wi-Fi network as it originally was. This is simply to return your phone to its original set-up. The temporary switch to the Shelly network allowed the SNOPRO-100 to pair up with your phone specifically and it will now link directly with your home's router.

NOTE: If the connection to the "Shelly" times out, you will need to reset the Shelly.

To reset the "Shelly" follow these steps:

1. Turn off power to the SNOPRO-100W Control and wait 30 secs.
2. Turn power back on to the SNOPRO-100W controller.
3. Turn the power off and on five (5) consecutive times in a medium cadence. You should end up in the power on position.

STEP 7: Finished. The SNOPRO-100W is now paired with the WSM App (Figure 8).

Figure 7

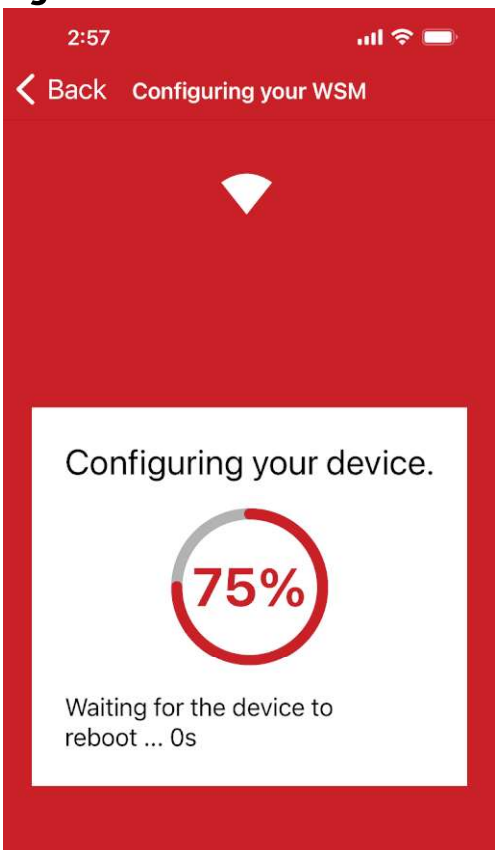
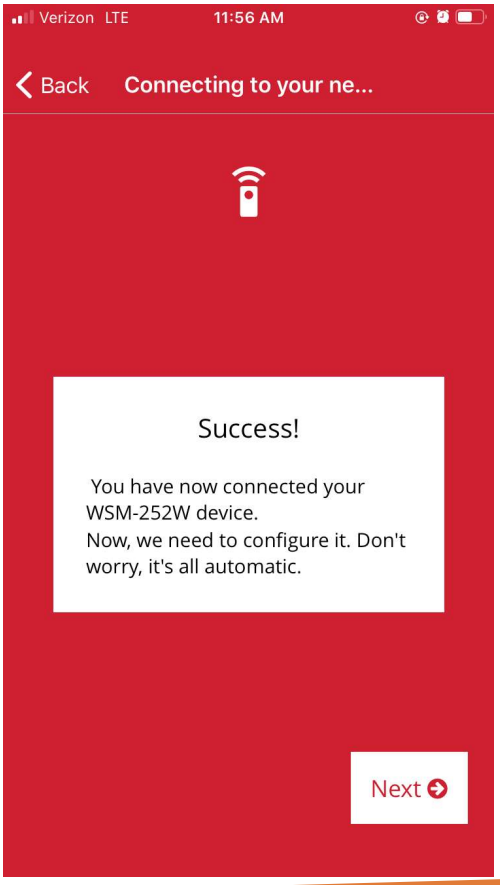


Figure 8



Step 8: Figure 9 shows the setup screen starting from the top.

EDIT NAME: Here you can give your controller a name (e.g.SNO-PRO-100, Front Snowmelt, Back Snowmelt, etc.)

STARTING TRIGGER: Use the slider to set the percent of probablity of snow in the next two (2) hours. The WSM App will compare this setting to the forecast and turn the system on or off.

NOTE: This is using a weather forecast and does not guarantee precipipation. Caution should be used when setting the percentage. The higher the % the less sensitive the system is, and vice versa, the lower the % is the more sensitive. This means that in areas with fast-changing climates, you may want a more sensitive system.

PREHEAT PERIOD: This is amount of time the system should start heating before the snow arrives. Typical setting is 2 hours.

BELOW 0%: When temperatures are below 0% °F, snowmelting is not very affective against mother nature. This is defaulted to "Yes". The system will not opperate below 0%°F.

ABOVE 50%: Likewise when temperatures are above 50%°F, mother nature will do a better job of melting snow. This is defaulted to "Yes" and the system will not operate when temperatures are above 50%°F.

ACTIVATION LENGTH: Switch this to "Yes" if you want the system to stop running after 24 hours after activation.

DO NOT TRACK WEATHER: Switch this to "Yes" if you do **NOT** want the controller to use the weather forecast. Putting it in this mode will only allow for manual override.

Click "Save" to save all the changes.

Figure 9

STEP 9: MANUAL OVERRIDE FROM WSM APP: Slide the "System On" to the right will manully turn the SNOPRO-100W on (Figure 10). NOTE: It will stay on until you manually turn it off.

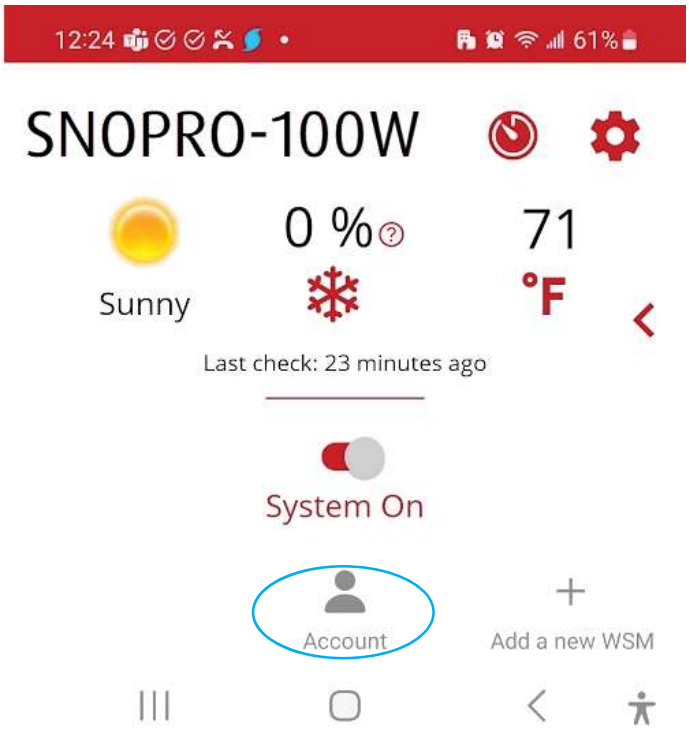
STEP 10: Delete the control from the WSM App. On the control to be deleted, swipe left and click the garbage can (Figure 11). NOTE: This cannot be undone.

Figure 10

Figure 11

STEP 11: Account Settings (Figure 12). Click on the "Account" icon on the bottom middle of the WSM App.

Figure 12



STEP 12: Account Settings (Figure 13).
NOTIFICATIONS: On or Off.

DEGREE PREFERENCE: Choose either Celsius or Fahrenheit.

FAQ: Link to frequently asked questions screen.

CHANGE PASSWORD: Change the WSM App password. Follow prompts.

LOGOUT: Click to log out of the WSM App.

Figure 13