



August 2026 Webinar



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## Snow Melt Troubleshooting & Repair: Field Solutions



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### Session Goal

Master systematic field diagnostics — emergency sensor bypasses, live amp draw testing, ETOG-56 multi-point verification, and Low-Temp Lockout override procedures — to isolate and resolve snow melt system failures on-site without tearing up slabs.

# The Systematic Diagnostic Framework

## The 4-Step Elimination Method: Supply to Slab

Moving methodically from supply source to embedded cable prevents misdiagnosis and wasted component replacements. Follow this sequence every time — no shortcuts.

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### Supply & Power Check

Verify line voltage at panel, breaker, and contactor **under load**.

02

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### Heating Element Integrity

Conduct Resistance (Ohm) & Insulation (Megohmmeter) testing at cold lead connections. Validate with live clamp-meter amp draw.

03

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### Controls & Signal Pathways

Inspect controller operating states, status LED lights, and terminal relay outputs. Execute emergency sensor bypass if required.

04

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### Sensors & Environmental Thresholds

Perform 3-part ETOG-56 pin testing, field simulation via freeze spray, and verify Low-Temp Lockout settings before callback dispatch.

# Step 1: Electrical & Heating Element Diagnostics

## Resistance (Ohm) Testing

Measure Core-to-Core resistance across conductors using a calibrated digital multimeter. Compare against factory nameplate specs — reading must fall within **-5% to +10%** of label rating. Values outside this window indicate a compromised cable or splice.

## Core-to-Ground Insulation Test

Use a **500V Megohmmeter** to test Core-to-Ground (braid/sheath). Minimum required reading: **10+ MΩ** — on healthy installations. Anything below 10 MΩ indicates moisture ingress or jacket breach requiring further investigation.

## Live Load & Voltage Diagnostics ⚡

Clamp meter across each relay and verify the amperage and then supply voltage at for each heating elements during an active heating cycle.

**Why static ohm checks are not enough:** A relay contact heating under load, a dropped zone leg, or a voltage sag will only appear as a problem during live operation — not on a cold ohm reading. Always confirm both amperage draw and voltage levels at commissioning to catch intermittent faults.

⊗ **Breaker Requirement:** Snow melt systems require **30mA Equipment Protection (Class B EP)** — NOT a 5mA personnel GFCI breaker. Using the wrong breaker causes nuisance trips and leaves systems unprotected.

# Step 2: Controller & Sensor Diagnostics

## Reading Status Lights & Indicators

### Blinking "Supply" Light (SCP-120 / APS-3C)

Indicates missing, open-circuit, or shorted high temperature limit sensor. Do not replace controller before sensor verification.

### No Relay Engagement

Verify 120V coil trigger signal from controller to relay panel before assuming component failure.

### SCE-120 / ETO2 Application & Sensor Configs

**Initial Setup Warning:** Selecting inapplicable sensors during controller setup causes false alarms on electric systems. Always verify sensor selection matches the installed configuration.

**Extra alarms = setup error, not hardware failure.** Reset is required after correction.

## Emergency Field Bypasses & Overrides

### Manual Override

Force contactors closed for temporary thermal testing during diagnostics.

### SCP-120 / APS-3C Bypass

Install **470 k $\Omega$  resistor** across high-temp sensor terminals to bypass.

 **Temporary Use Only:** Resistor bypasses remove slab temperature feedback. Do not leave bypassed systems unattended — system will run on air/moisture demand only with no slab thermal limiting.

# Manual Sensor Override Procedures

Restoring Heat Without Excavating Concrete or Pavers — Testing, Non-Ideal Snow Detection, & Extreme Weather Protocol

## 1 Manual System Activation via Simulated Snow/Ice

Reactivate the system by placing snow or ice cubes on the sensor. Note: If it is above 38°F outside, the system will not energize due to its control logic.

## 2 Manual Override Switch

Automatic controls operate based on conditions determined by sensors. Every controller has a manual override feature that can be used for testing, when snow detection was not ideal.

# Step 3: Sensor Diagnostics

## 1 Clean the sensor

Ensure all snow sensors are clean and clear of debris so they can accurately detect moisture and ambient temperature. Both the moisture grid and temperature sensor node require direct exposure to the environment to trigger properly. Always wipe the sensor clean before the winter season starts for optimal snow detection.

## 3 Catching moisture issues early

Inspect controls and sensors for signs of water intrusion, such as cover condensation, circuit board corrosion, or physical sensor cracks. Catching moisture issues early protects delicate electronics and prevents costly system failures.

## 2 Inspect the connections

Inspect all sensor wires and connections for damage or corrosion to ensure uninterrupted communication with your controller. Check both in-line and control box fuses. Maintaining these electrical pathways is critical for reliable operation.

## 4 Simulate Cold Condition (Temperature Probe)

To test the sensor during warmer months, cool the temperature probe with Freeze Spray (or chill it with snow/ice) until frost forms — the SNOW and HEAT LEDs should remain off at this stage. Then moisten the sensing grid on top of the sensor with water or a wet finger; this combination of cold and moisture should trigger the system to activate correctly.

# Step 4: Low-Temp Lockout & Slab Thermal Mass

## Low-Temperature Lockout (SCV-DUAL)

The low temperature lock-out function temporarily disables unit operation in temperatures less than 17°F (−8.33°C) in those climates or during those extreme weather events where it is simply too cold to make operation practical. The factory default low temperature lock-out setting is Off, meaning that the unit will try to activate the heaters regardless of ambient temperature.

## Slab Thermal Mass & Warm-Up Lag

Thicker pavers or slabs have high thermal mass — a cold-soaked slab can take extra time to reach surface melt temperatures even with the system activated correctly. During severe freeze events, thermal deficit is amplified.

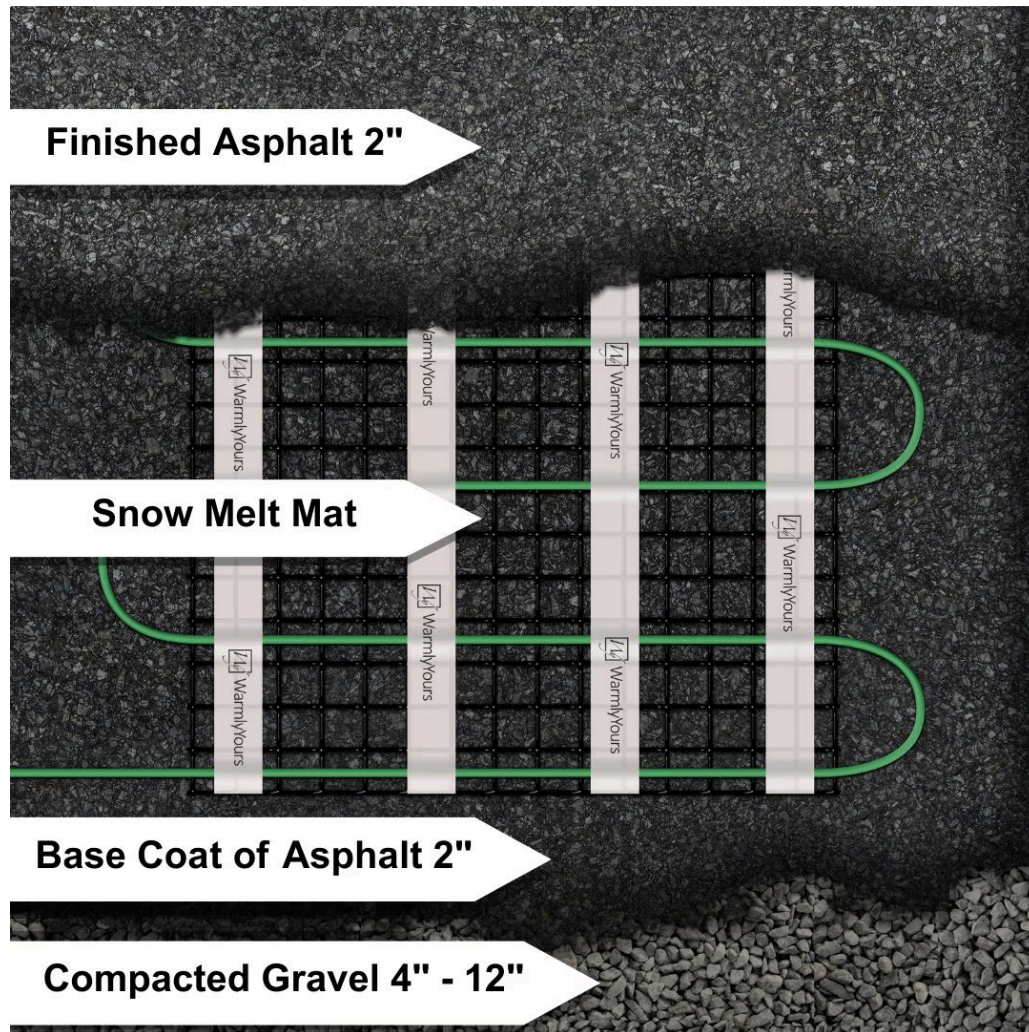
 **Client Callback Prevention:** Educate clients that the system **COULD** be manually activated **before** storms. Pre-heat is beneficial for effective snow management.

## After Run Timer Configuration

A default of **2 to 4 hour post-snow run-on timer** ensures the slab fully dries out after snowfall stops, preventing refreezing into dangerous black ice.

# Depth & Bedding Factors

Beneath-slab conditions significantly affect system performance, warm-up time, and long-term cable health. These installation variables are often overlooked during troubleshooting but can be the root cause of poor system performance.



## Bedding Material Failures

**Stone Dust vs. Concrete Sand:** Stone dust under pavers retains water, corroding cable jacket materials and insulating heat away from pavers. **Concrete sand** provides superior drainage and more uniform heat distribution. Always specify concrete sand in new installs.



## Installation & Embedment Depth

Cable embedded **deeper than 3 inches** below the surface drastically increases system warm-up times — adding an extra lag in cold-soaked conditions. Verify embedment depth during commissioning and document for service records.

# Quick Field Troubleshooting Matrix

Use this matrix as a first-response guide on-site. Match the observed symptom to its primary suspect and follow the prescribed verification steps before replacing any components.

| Observed Symptom                                 | Primary Suspect                                                             | On-Site Verification & Action                                                                                                                                         |
|--------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Controller indicates HEAT, but snow not melting  | Faulty connection, relay or element; installation depth or weather factors. | In/Out Voltage testing for each component and resistance test of the heating elements.                                                                                |
| Snowing but controller is not turning the system | Faulty sensor or incorrect sensor location.                                 | Inspect the sensor location, confirm free falling snow or moisture on the sensor. Test the sensor.                                                                    |
| GFCI Breaker trips instantly                     | Ground fault or moisture in junction box. Overloaded breaker.               | Megger test core-to-ground; inspect splices for water ingress. Verify <b>30mA GFEP breaker</b> used — not 5mA GFCI. Amp test the load and verify proper breaker size. |
| Controller light flashing / Error / Alarm        | Sensor                                                                      | Follow a testing guide or troubleshooting guide based on the controller and sensor combination.                                                                       |
| Partial melting across the area                  | Damaged element, poor spacing or deep installation.                         | Clamp-meter live amp draw per zone; thermal camera sweep to evaluate spacing and locate cold zones.                                                                   |

# Field Repairs vs. Technical Escalation

## ✓ Field Repairs You Can Perform On-Site

### → Re-terminating Connections

Loose wire connections in junction boxes can be re-terminated on-site without specialized equipment.

### → Controller Adjustment

Reconfigure controller parameters, like after-run timer to ensure proper melting.

### → Sensor Maintenance

Clean pavement sensor heads with **Scotch-Brite** and clear aerial sensor obstructions from eaves or vegetation. Ensure proper sensor location for optimal snow detection.

### → Bypass High Temperature Sensor

**Install 470 kΩ** resistor to bypass High Temperature Sensor

### → ETOG-56 6-conductor testing

Run full 6-conductor sensor tests and field-simulate activation with freeze spray or ice bags.

## ☎ When to Escalate to WarmlyYours Technical Support

### Underground Cable Damage

Requires Thermal Imaging & Fault Locator dispatch — do not attempt DIY excavation without pinpoint location.

### Cold Lead Repair

Installing an authorized subterranean Cold Lead Repair Kit requires factory-approved procedures.

### Warranty Evaluation

Replacement sensor authorization and warranty evaluation require escalation to WarmlyYours directly.

### Persistent GFEP Trips

After full megger and live amp draw testing, persistent trips indicate cable damage requiring factory support.

📄 **24/7 Field Tech Support Line: (800) 875-5285** — available around the clock for urgent freeze-event diagnostics.

# Summary & Best Practices Checklist

## The PRO Installer Checklist — Every Job, Every Time



### Record Baseline Resistance

Measure and log Ohm & Megohm values **before, during, and after** slab pour or paver lay. Capture live clamp-meter amp draw at commissioning. These records are your legal and warranty protection.



### Correct Breaker Protection

Confirm **30mA GFEP** ground fault protection on every snow melt circuit. Never accept a 5mA personnel GFCI as a substitute — it will nuisance-trip and leave systems unprotected.



### Proper Sensor Installation & Maintenance

Ensure sensor installed where it will receive a normal free falling snow, not under an overhang or a tree. Wipe the sensor clean before the winter season starts for optimal snow detection.



### Educate the Client

Remind clients of the ability to adjust after-run time depending on the conditions and manually overriding the system 1-2 hrs before extreme weather events to prevent false callbacks and set accurate performance expectations.

# Live Q&A & Technical Resources

## Open Floor for Field Questions

Ask our technical specialists about specific job site issues, sensor bypass scenarios, live amp draw readings, or LTL configuration challenges. No question is too specific — we're here to help you solve problems in the field.

 **24/7 Tech Support**

**(800) 875-5285**

 **Online Resources**

**[warmlyyours.com](https://warmlyyours.com)**

# CLOSE + SUPPORT

## Resources Coming Your Way

-  PDF of today's slides
-  PRO PDF Field Resource : **Quick Field Troubleshooting Checklist**
-  PRO Reward coupon
-  Recording of this webinar

## Next Webinar in the Series

### September 2026 Webinar - Troubleshooting Tile Floor Heating: Common Issues



Troubleshooting Tile Floor Heating:  
Common Issues & Solutions

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## 24/7 PRO Technical Support

Need help on a job? Call us:

 800-875-5285

 [info@warmlyyours.com](mailto:info@warmlyyours.com)

We'd rather help you plan the install than troubleshoot a problem later. Don't hesitate to call.