Tech Data

Viega Wi-Fi Snow Melt Control

The Wi-Fi Snow Melt Control operates hydronic heating equipment designed to melt snow and/or ice from roads and walkway surfaces. The control works with the Snow/Ice Sensor or Aerial Snow Sensor to automatically detect snow or ice and operates a single boiler or steam valve to supply heat to the slab. Boiler return protection is provided to non-condensing boilers using a mixing valve or variable speed injection mixing pump. The tekmar Connect mobile app allows for remote operation and monitoring of the snow melting system from anywhere in the world.

This document is subject to updates. For the most current Viega technical literature please visit www.viega.us.

Viega products are designed to be installed by licensed and trained plumbing, mechanical, and electrical professionals who are familiar with Viega products and their installation. Installation by non-professionals may void Viega LLC’s warranty.
Dedicated Boiler

Description
The Wi-Fi Snow Melt Control can operate a boiler that is dedicated to the snow melting system. The system is piped in primary-secondary to allow constant flow rates through the low-mass boiler and filled with glycol to prevent freezing.
- The system pump operates continuously when heating the slab during storm/idling/melting operation.
- The boiler pump cycles on and off together with the boiler.
- The slab temperature is controlled by modulating the boiler firing rate or cycling the boiler on and off.
- The slab target is determined by the storm/idling/melting setpoint and by the measured outdoor air temperature.
- Optional slab protection limits the temperature differential between the boiler supply and slab.

The system operation is dependent on sensor selection, as listed in the table below.

### Sensor options

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Sensor Model(s)</th>
<th>Slab Temperature Control</th>
<th>Manual Start/ Timed Stop</th>
<th>Auto Start/ Timed Stop</th>
<th>Auto Start/ Auto Stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Automatic Snow/Ice Sensor</td>
<td>•</td>
<td>•</td>
<td>–</td>
<td>•</td>
</tr>
<tr>
<td>S2+S3</td>
<td>Aerial Snow Sensor and Slab Sensor</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>–</td>
</tr>
<tr>
<td>S3</td>
<td>Slab Sensor</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>–</td>
</tr>
<tr>
<td>S2</td>
<td>Aerial Snow Sensor (not recommended)</td>
<td>–</td>
<td>•</td>
<td>•</td>
<td>–</td>
</tr>
</tbody>
</table>

### Mechanical Configuration

#### Legend
- B1 = Modulating Boiler
- P1 = System Pump
- P2 = Boiler Pump
- S1 = Snow/Ice Sensor
- S2 = Aerial Snow Sensor
- S3 = Slab Sensor
- S4 = Outdoor Sensor
- S5 = Universal Sensor for Boiler

#### Application Settings

<table>
<thead>
<tr>
<th>Setting Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Mode</td>
<td>Boiler</td>
</tr>
</tbody>
</table>

[Diagram of Wi-Fi Snow Melt Control with sensors and components labeled]
### Wiring Diagram

**System is Melting**

**Warming Up**

- **Time Left**: 10:30 AM, Outdoor 32 °F
- **Settings**
- **Stop**
- **Status**

---

**Viega**

**Wi-Fi Snow Melt Control**

1. **Do Not Apply Power**
   - S1
   - S2
   - S3
   - S4
   - S5
   - B1
   - P1
   - L
   - N

---

**For product literature:**

Pour la documentation du produit:

viega.us

1084-03

Designed and assembled in Canada

Power: 115 V (ac) ±10%, 60 Hz, 20 VA

Relays: 230 V (ac) 5 A 1/3 hp

Var. Pump: 230 V (ac) 2.4 A

1084-03

Designed and assembled in Canada

Power: 115 V (ac) ±10%, 60 Hz, 20 VA

Relays: 230 V (ac) 5 A 1/3 hp

Var. Pump: 230 V (ac) 2.4 A

**FCC ID**: Z64-CC3100M0DR1, **IC**: 4511-CC3100M0DR1

Meets Class B: FCC Part 15B, ICES-003

---

**Warning**

Disconnect all power before opening.

**Attention**

Coupez l'alimentation avant l'ouverture.

**Signal wiring** must be rated at least 300 V.

Le câblage du signal doit être d'une capacité d'au moins 300 V.
Dedicated Boiler and Mixer

Description
The Wi-Fi Snow Melt Control can operate a boiler that is dedicated to the snow melting system. The system is piped in primary-secondary to allow constant flow rates through the low-mass boiler and filled with glycol to prevent freezing.
- The system and boiler pumps operate continuously when heating the slab during melting/idling/storm operation.
- The mixing valve position is adjusted to 100% open unless providing boiler return protection.
- The slab temperature is controlled by modulating the boiler firing rate or cycling the boiler on and off.
- The slab target is determined by the melting/idling/storm setpoint and by the measured outdoor air temperature.
- Optional slab protection limits the temperature differential between the boiler supply and slab.

The system operation is dependent on sensor selection, as listed in the table below.

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Sensor Model(s)</th>
<th>Slab Temperature Control</th>
<th>Manual Start/Timed Stop</th>
<th>Auto Start/Timed Stop</th>
<th>Auto Start/Auto Stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Automatic Snow/Ice Sensor</td>
<td>•</td>
<td>•</td>
<td>–</td>
<td>•</td>
</tr>
<tr>
<td>S2+S3</td>
<td>Aerial Snow Sensor and Slab Sensor</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>–</td>
</tr>
<tr>
<td>S3</td>
<td>Slab Sensor</td>
<td>•</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>S2</td>
<td>Aerial Snow Sensor (not recommended)</td>
<td>–</td>
<td>•</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Mechanical Configuration

Legend
B1 = Modulating Boiler
M1 = Actuating Motor
P1 = System Pump
P2 = Boiler Pump
S1 = Snow/Ice Sensor
S2 = Aerial Snow Sensor
S3 = Slab Sensor
S4 = Outdoor Sensor
S5 = Universal Sensor for Boiler
S6 = Universal Sensor for Mix Supply
X1 = Transformer
V1 = 3-Way Mixing Valve

Application Settings

<table>
<thead>
<tr>
<th>Setting Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Mode</td>
<td>Boiler + Mix</td>
</tr>
</tbody>
</table>
Wiring Diagram

### System is Melting

**Time Left** 10:30 AM  **Outdoor** 32 °F

**Warming Up**

**Settings**  **Stop**  **Status**

---

**Viega Wi-Fi Snow Melt Control**

**Power** 115 V (ac) ±10%, 60 Hz, 20 VA

**Relays** 230 V (ac) 5 A 1/3 hp

**Var. Pump** 230 V (ac) 2.4 A

**Designed and assembled in Canada**

**Date Code** H6118A

**Signal wiring must be rated at least 300 V.**

**Pour le câblage du signal doit être d'une capacité d'au moins 300 V.**

**For product literature:**

For product literature:

Pour la documentation du produit:

viega.us

**Disconnect all power before opening.**

Coupez l'alimentation avant l'ouverture.

**WARNING**

**ATTENTION**

**Contains Wi-Fi transceiver:**

FCC ID: Z64-CC3100M0DR1, IC: 4511-CC3100M0DR1

Meets Class B: FCC Part 15B, ICES-003

---

**Signal wiring must be rated at least 300 V.**

---

**TD-HC 1119 Wi-Fi Snow Melt Control**

---

---

---
Shared Boiler and Heat Exchanger

Description
The Wi-Fi Snow Melt Control can operate a snow melting zone from a heat source that is shared with other loads in a building. A heat exchanger isolates the glycol-filled snow melting system loop from the water-filled main heating system.

- The system pump operates continuously when heating the slab during storm/idling/melting operation.
- The slab temperature is controlled by cycling the heat exchanger pump and the boiler enable on and off.

- The slab target is determined by the storm/idling/melting setpoint and by the measured outdoor air temperature.
- A normally-closed aquastat protects the heat exchanger from freezing by shutting off power to the system pump.

The system operation is dependent on sensor selection, as listed in the table below.

<table>
<thead>
<tr>
<th>Sensor Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>S1</td>
</tr>
<tr>
<td>S2+S3</td>
</tr>
<tr>
<td>S3</td>
</tr>
<tr>
<td>S2</td>
</tr>
</tbody>
</table>

Mechanical Configuration

Legend
A1 = Normally Closed Freeze Protection Aquastat
B1 = Boiler Enable
HX = Heat Exchanger
P1 = System Pump
P2 = On/Off Heat Exchanger Pump
S1 = Snow/Ice Sensor
S2 = Aerial Snow Sensor
S3 = Slab Sensor
S4 = Outdoor Sensor

Application Settings

<table>
<thead>
<tr>
<th>Setting Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Mode</td>
<td>PWM Zone</td>
</tr>
<tr>
<td>Boiler Type</td>
<td>Enable</td>
</tr>
</tbody>
</table>

Snow/Ice Sensor Options

S1
S2
S3
S4
Wiring Diagram

**Viega Wi-Fi Snow Melt Control**

**Go Not Apply Power**

**1 kΩ max**

**Opn**

**3**

**Var**

**2**

**–**

**Mix**

**V/mA**

**1**

**+**

**Pwr**

**4**

**Mix**

**Cls**

**5**

**Blu**

**8**

**Yel**

**9**

**Brn**

**10**

**Slab**

**11**

**Man**

**12**

**Melt**

**C**

**15**

**Sup**

**16**

**Boil**

**17**

**Out**

**18**

**Com**

**19**

**tN4**

**13 28 27 26**

**Power**

**29**

**L**

**30**

**N**

**Stage 1**

**21**

**Boiler 1**

**Stage 2**

**446**

**Heat Relay**

**System Pump**

**28**

**27**

**26**

**25**

**24**

**23**

**22**

**Boiler 1**

**20**

**Mod Boiler**

**19**

**Relays**

**5 A 1/3 hp**

**Var. Pump**

**230 V (ac) 2.4 A**

**Power**

**115 V (ac) ±10%, 60 Hz, 20 VA**

**Relays**

**230 V (ac) 5 A 1/3 hp**

**Var. Pump**

**230 V (ac) 2.4 A**

Contains Wi-Fi Transceiver:

**FCC ID: Z64-CC3100M0DR1, IC: 4511-CC3100M0DR1**

Meets Class B: FCC Part 15B, ICES–003

**WARNING**

Disconnect all power before opening.

**ATTENTION**

Coupez l'alimentation avant l'ouverture.

Signal wiring must be rated at least 300 V.

Le câblage du signal doit être d'une capacité d'au moins 300 V.
Shared Boiler and Mixing Injection Pump

Description
The Wi-Fi Snow Melt Control can operate a snow melting zone from a heat source that is shared with other loads in a building. The system uses a variable speed injection pump to regulate the water temperature and a heat exchanger isolates the glycol-filled snow melting system loop from the water-filled main heating system.

- The system pump operates continuously when heating the slab during storm/idling/melting operation.
- The slab temperature is controlled by adjusting the speed of the variable speed injection pump.
- When the variable speed injection pump is on, the heat exchanger pump and the boiler enable are on.
- The slab target is determined by the storm/idling/melting setpoint and by the measured outdoor air temperature.
- A normally-closed aquastat protects the heat exchanger from freezing by shutting off power to the system pump.

The system operation is dependent on sensor selection, as listed in the table below.

<table>
<thead>
<tr>
<th>Sensor options</th>
<th>Slab Temperature Control</th>
<th>Manual Start/ Timed Stop</th>
<th>Auto Start/ Timed Stop</th>
<th>Auto Start/ Auto Stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 Automatic Snow/Ice Sensor</td>
<td>•</td>
<td>•</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>S2+S3 Aerial Snow Sensor and Slab Sensor</td>
<td>•</td>
<td>•</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>S3 Slab Sensor</td>
<td>•</td>
<td>•</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>S2 Aerial Snow Sensor (not recommended)</td>
<td>–</td>
<td>•</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Mechanical Configuration

Legend
A1 = Normally Closed Freeze Protection Aquastat
B1 = Boiler Enable
HX = Heat Exchanger
P1 = System Pump
P2 = Heat Exchanger Pump
P3 = Variable Speed Injection Mixing Pump
S1 = Snow/Ice Sensor
S2 = Aerial Snow Sensor
S3 = Slab Sensor
S4 = Outdoor Sensor
S5 = Universal Sensor for Boiler
S6 = Universal Sensor for Mix Supply
V1 = Globe Valve

Application Settings

<table>
<thead>
<tr>
<th>Setting Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Mode</td>
<td>Mixing</td>
</tr>
<tr>
<td>Mixing Type</td>
<td>Injection</td>
</tr>
<tr>
<td>Boiler Type</td>
<td>Enable</td>
</tr>
</tbody>
</table>
Wiring Diagram

For product literature:
Pour la documentation du produit:
viega.us

1084-09
Designed and assembled in Canada
Power 115 V (ac) ±10%, 60 Hz, 20 VA
Relays 230 V (ac) 5 A 1/3 hp
Vac Pump 230 V (ac) 2.4 A
Contains Wi-Fi transceiver:
FCC ID: 284-CC3100M0DR1, IC: 4511-CC3100M0DR1
Meets Class B: FCC Part 15B, ICES-003

WARNING
Connect all power before opening.

ATTENTION
Coupez l'alimentation avant l'ouverture.

Signal wiring must be rated at least 300 V.
Le câblage du signal doit être d'une capacité d'au moins 300 V.

Viega
Wi-Fi Snow Melt Control

Time Left 10:30 AM Outdoor
- - - - hrs 32 °F
System is Melting
Warming Up

Settings  Stop  Status

1 kΩ max
Opn
Var
Mix V/mA
Pwr
Mix
Cls
1 +
Blu
8
Yel
9
Brn/
10 Slab
Man
11 Melt
C
12

Disconnect all power before opening.
8"3/*/(*
Coupez l'alimentation avant l'ouverture.

S1  S2  S3
S4  S5
S6
B1  A1
P2  P1
P3

Signal wiring must be rated at least 300 V.
Le câblage du signal doit être d'une capacité d'au moins 300 V.

L  N

TD-HC 1119 Wi-Fi Snow Melt Control
Modulating Steam Valve

Description
The Wi-Fi Snow Melt Control can operate a modulating steam valve and a steam-to-water heat exchanger to heat a glycol-filled snow melting system.

- The system pump operates continuously when heating the slab during storm/idling/melting operation.
- The slab temperature is controlled by adjusting the modulating steam valve position.
- The boiler relay is closed while the modulating steam valve is open. This provides a signal to fire the steam boiler.

The slab target is determined by the storm/idling/melting setpoint and by the measured outdoor air temperature.

The system operation is dependent on sensor selection, as listed in the table below.

### Sensor options

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Sensor Model(s)</th>
<th>Slab Temperature Control</th>
<th>Manual Start/ Timed Stop</th>
<th>Auto Start/ Timed Stop</th>
<th>Auto Start/ Auto Stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Automatic Snow/Ice Sensor</td>
<td>•</td>
<td>•</td>
<td>–</td>
<td>•</td>
</tr>
<tr>
<td>S2+S3</td>
<td>Aerial Snow Sensor and Slab Sensor</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>–</td>
</tr>
<tr>
<td>S3</td>
<td>Slab Sensor</td>
<td>•</td>
<td>•</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>S2</td>
<td>Aerial Snow Sensor (not recommended)</td>
<td>–</td>
<td>•</td>
<td>•</td>
<td>–</td>
</tr>
</tbody>
</table>

### Mechanical Configuration

#### Legend
- B1 = Boiler Enable
- HX = Steam-to-Glycol Heat Exchanger
- M1 = Modulating Steam Valve
- P1 = System Pump
- S1 = Snow/Ice Sensor
- S2 = Aerial Snow Sensor
- S3 = Slab Sensor
- S4 = Outdoor Sensor
- S5 = Universal Sensor for Mix Supply

#### Application Settings

<table>
<thead>
<tr>
<th>Setting Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Mode</td>
<td>Mixing</td>
</tr>
<tr>
<td>Mixing Type</td>
<td>0-10 V or 4-20 mA</td>
</tr>
<tr>
<td>Boiler Type</td>
<td>Enable</td>
</tr>
</tbody>
</table>
Wiring Diagram

Time Left: 10:30 AM
Outdoor: 32 °F

System is Melting
Warming Up

Settings  Stop  Status

For product literature:
Pour la documentation du produit:
viega.us

1084-03
Designed and assembled in Canada
Power: 115 V (ac) ±10%, 60 Hz, 20 VA
Relays: 230 V (ac) 5 A 1/3 hp
Vac Pump: 230 V (ac) 2.4 A
Contains Wi-Fi transceiver:
FCC ID: Z64-CC3100M0DR1, IC: 4511-CC3100M0DR1
Meets Class B: FCC Part 15B, ICES-003

WARNING
 Disconnect all power before opening.

ATTENTION
Coupez l'alimentation avant l'ouverture.

Signal wiring must be rated at least 300 V.
Le câblage du signal doit être d'une capacité d'au moins 300 V.

Viega Wi-Fi Snow Melt Control

Do Not Apply Power

 disconnect in case of power failure

Signal
1 kΩ max
+ –

Opn
3
Var
2
–
Mix V/mA
1
+ Pwr
4
Mix
Cls
5
B1
Blu
8
Yel
9
Brn/
10
Slab
Man
11
Melt
C
12
Blk/
7
Com
Red
6
B1
Stage 1
21
Boiler
1
Stage 2
22
Heat
Relay
System
Pump
23
24
25
26
27
28
29
30
L
N

Disconnect all power before opening.

TD-HC 1119 Wi-Fi Snow Melt Control
The following are the recommended specifications for the Wi-Fi Snow Melt Control.

- The control shall communicate with the Internet to provide remote starting, stopping and monitoring through an Android, Apple iOS mobile app, or through a web browser.
- The control shall have the ability to use a snow/ice sensor in order to automatically detect snow or ice and begin operation of the system. The system shall continue to run until the sensor is dry or the control is manually stopped.
- The control shall communicate with an Internet weather service to determine the local snow fall forecast and automatically pre-heat the slab for an adjustable timed duration.
- The control shall have the ability to be manually started with an adjustable running time that counts down and automatically stops the system.
- The control shall not operate the system to provide heat to the snow melting zones when it enters into either a Warm Weather Shut Down (WWSD) or a Cold Weather Cut Off (CWCO) mode.
- The system water temperature shall be based on the outdoor temperature and feedback from sensors located in the snow melting slabs.
- The control shall have the option to mix the supply water temperature using a mixing valve with a floating action, 0-10 V (dc) or a 4-20 mA actuator motor, or using a variable-speed injection mixing pump.
- The control shall have an adjustable minimum return water temperature setting to help prevent condensation of flue gases and subsequent corrosion and blockage of the boiler’s heat exchanger and chimney.
- The control shall have the ability to limit the amount of cool water being returned to the boiler through the mixing device in order to prevent low boiler operating temperatures and flue gas condensation.
- The control shall have the ability to directly control the supply temperature of a modulating boiler, a one or two-stage boiler, or to send a boiler enable signal to another boiler operating control to allow for a staging control to be connected.
- The control shall have the option of an automatic differential calculation for the operation of one or two boiler stages in order to prevent short cycling.
- The control shall use proportional, integral and derivative (PID) logic when modulating or staging boiler stages.
- The control shall have the option to limit the heat up rate of the slab to help prevent cracking the concrete.
- The control shall have two separate lockable access levels to limit the number of adjustments available to various users.
- The control shall have a manual override that allows each output to be manually turned on or off.
- The control shall continuously monitor its temperature sensors and provide an error message upon a control or sensor failure.
- The control shall record and display boiler and pump running hours and minimum and maximum temperatures depending on the access level that has been selected.
- During extended periods of inactivity, the pumps and valves that are operated by the control shall be periodically exercised to prevent seizure during long idle periods.